BOŻENA CETNAROWSKA

COMPOUND NOUNS AND PHRASAL NOUNS IN ENGLISH AND POLISH

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Table of contents

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List of abbreviations[1]

A (or ADJ)	– adjective
ADVZ	– adverbialiser
ADJZ	– adjectiviser
AN	– adjective+noun (combination)
ATAP	– attributive-appositive (compounds)
BNC	– British National Corpus
COCA	– Corpus of Contemporary American English
CONJ	– conjunction
CA	– classifying (i.e., classificatory) adjective
COP	– copula
DAT	– dative
DIM	– diminutive
DP	– determiner phrase
F	– feminine
FUT	– future tense
GEN	– genitive
H	– head
IMPRS	– impersonal
INF	– infinitive
INS	– instrumental
LOC	– locative
LV	– linking vowel
M	– masculine
MOD	– modifier
N	– noun
N	– neuter

[1] The majority of the abbreviations given below have been adopted from the Leipzig Glossing Rules, developed jointly by members of the Department of Linguistics of the Max Planck Institute for Evolutionary Anthropology and the Department of Linguistics of the University of Leipzig. The Leipzig Glossing Rules are available at: https://www.eva.mpg.de/lingua/resources/glossing-rules.php.

NA – noun+adjective (combination)
NKJP – Narodowy Korpus Języka Polskiego (National Corpus of Polish)
NMLZ – nominaliser
NN – noun+noun (combination)
NN.GEN – noun followed by a genitive attribute
NOM – nominative
NP – noun phrase
N+RA – noun+relational adjective (combination)
P (or PREP) – preposition
PASS – passive
PF – proper function
PL – plural
PP – prepositional phrase
PRS – present tense
PST – past tense
PTCP – participle
RA – relational adjective
RA+N – relational adjective+noun (combination)
RDP – recoverably deletable predicate
QA – qualitative (i.e., qualifying) adjective
SEM – semantic representation
SG – singular
SUFF – suffix
TH – theme vowel
V – verb
VP – verb phrase

Introduction

This monograph investigates morphological compounds and multi-word units in English and Polish. I will restrict my attention to compound nouns and compound-like phrasal nouns.

When analysing the latter group in English, I consider so-called genitive compounds (e.g., *bull's eye* and *doll's house*) and combinations consisting of relational adjectives and nouns (e.g., *presidential election*, *racial problem*, *parental consent*). Relational adjectives are denominal adjectives which can be paraphrased as 'relating to N, concerning N' (where N is the base noun). The group of phrasal nouns in Polish to be discussed here includes NN units in which two nouns agree in case, for instance, *człowiek instytucja* (man.NOM.SG institution.NOM.SG) 'one-man-institution' or *szpital-pomnik* (hospital.NOM.SG monument.NOM.SG) 'memorial hospital,' as well as NN units in which the right-hand noun is the genitive attribute of the head, as in *mąż stanu* (man.NOM.SG state.GEN.SG) 'statesman' and *dawca licencji* (giver.NOM.SG licence.GEN.SG) 'licensor.' I will also look at Polish multi-word expressions which consist of a noun and an adjective in any order, for example, *ekran dotykowy* (screen.NOM.SG touch.RA.NOM.SG) 'touch screen' (N+A) and *zimowe opony* (winter.RA.NOM.PL tyre.NOM.PL) 'winter tyres.'

It is interesting to ask the question how the typological and genetic differences between English and Polish are reflected in the system of compounds and compound-like units. English is said to have inherited the Germanic tendency for coining morphologically complex nouns by compounding (Bauer et al. 2013: 625). In contrast, Slavonic diachronic studies suggest that compounding was not a very productive process in Proto-Slavonic and in Old Polish (see Długosz-Kurczabowa and Dubisz 1999: 62–65). Some morphological compounds attested in Old Polish were coined as loan translations, for instance, *mił-o-sierdzi-e* (fond+LV+heart+NOM.SG) 'mercy' from Latin *misericordia* and *wszech-mogąc-y* (all+able+NOM.SG) 'almighty' from Latin *omnipotens*. There are compounds proper in contemporary Polish which are calques of German compounds, such as *list-o-nosz* (letter+LV+carry) 'postman' (from *Briefträger*) and *dusz-pasterz* (soul+shepherd) 'priest, pastor' (from *Seelsorger*), or calques of Russian compounds, for example, *brak-o-rób-stw-o* (dud+LV+DO+NMLZ+NOM.SG) 'wastage' (from

brakodielstvo) (see Nagórko 2016). Studies of Polish composite expressions (e.g., Damborský 1966) also note the influence of French on Polish (either directly or through the medium of Russian), which is responsible for the formation of compound-like multi-word units with the coordinate interpretation, such as *wagon-restauracja* (wagon.NOM.SG restaurant.NOM.SG) 'dining car,' *zegarek-bransoletka* (watch.NOM.SG bracelet.NOM.SG) 'watch with a bracelet, watch and bracelet set,' and *miasto-bohater* (city.NOM.SG hero.nom.SG) 'hero city.' Nevertheless, it is pointed out by Polish diachronic linguists (e.g., Handke 1976: 35–50 and Długosz-Kurczabowa and Dubisz 1999: 62–63, 75) that compounding should be regarded as a native pattern of forming morphologically complex words in Polish. This is confirmed by the existence of Old Slavonic compound personal nouns in contemporary Polish, such as *Bogumił* (god.DAT+dear) '(lit.) someone dear to God,' and by the occurrence of compound common nouns which can be traced back to Old Polish, for instance, *listopad* (leaf+LV+fall) 'November' and *świniopas* (pig+LV+graze) 'swineherd.' A growth in the productivity of compounding in Polish has been observed recently. Jadacka (2001: 113) compares Polish neologisms coined during two periods in the second half of the 20th century. During the first period, that is, 1945–1964, compounds constitute 12.33% of all neologisms belonging to the syntactic category of nouns. In the second period, that is, 1989–2000, compound nouns account for 34.36% of all novel morphologically complex nouns. Consequently, the study of composite expressions in contemporary Polish promises to be a fruitful area for further inquiry.

There are several goals which I intend to achieve in my monograph. I intend to highlight the existence of the "transition zone" between morphological compounds and canonical syntactic phrases. I will demonstrate that multi-word expressions which belong to such a transition zone (and which are referred to here as "phrasal lexemes") exhibit a mixture of word-like and phrase-like properties. I also aim to investigate the coexistence of morphological compounds and phrasal lexemes which consist of the same stems, for instance, English *atomic bomb* vs. *atom bomb*, or Polish *bajkopisarz* (fable+LV+writer) vs. *pisarz bajek* (writer.NOM.SG fable.GEN.PL) and *krem-żel* (cream.NOM.SG gel.NOM.SG) 'gel cream' vs. *kremożel* (cream+LV+gel) 'gel cream.'

I disagree with the treatment of NN combinations or AN/NA combinations in Polish as canonical noun phrases since, as will be shown here, they exhibit a naming function and are syntactically restricted. I will also argue against the assumption that multi-word expressions, such as *medical building* and *criminal policy* in English, or *pióro świetlne* (pen light.RA) 'light pen,' *miernik promieniowania* (meter.NOM radiation.GEN) 'radiation meter,' and *kierowca-dostawca* (driver.NOM supplier.NOM) 'delivery driver'

in Polish, should be regarded as lexicalised noun phrases. Such an assumption implies that expressions under analysis are semantically opaque and relatively rare. I will attempt to prove that patterns for coining phrasal nouns are employed productively (especially in Polish) and are used to "fill the gaps" when there is a need for coining a name of a person, object, or abstract notion.

Therefore, I will adopt here the theoretical underpinnings and the apparatus of Construction Morphology, as developed by, among others, Booij (2009, 2010, 2019), Masini (2009, 2019), Hüning (2010), Booij and Audring (2015), and Booij and Masini (2015). Construction Morphology argues in favour of a continuum between lexical and syntactic expressions. It postulates schemas which account for the internal structure of existing phrasal nouns and which can serve as models for coining new phrasal lexemes. I intend to demonstrate the usefulness of second order schemas (for the analysis of univerbation in Polish) and schema unification.

When discussing types of multi-word units in Polish and English I will employ the typology proposed by Bisetto and Scalise (2005), and later modified by Scalise and Bisetto (2009). This typology has been shown (e.g., by Masini and Benigni 2012) to be applicable both to morphological compounds and to compound-like units. Moreover, it is not Anglocentric and is designed to be appropriate for a description of languages belonging to various language families (e.g., Romance languages and Slavonic languages).

Theoretical considerations will be supported by data culled from the Corpus of Contemporary American English (COCA) and the National Corpus of Polish (NKJP). The PELCRA search engine devised for NKJP by Pęzik (2012) makes it possible to retrieve all word forms of a given lexical item and to obtain information on token frequency, collocation, and register.

Although the empirical material to be considered here includes both examples from English and Polish, the focus will be laid on data from Polish, since it shows greater richness of patterns which can be used to form multi-word units. It illustrates many interesting cases of competition between morphological compounds and multi-word units, which have received little attention in the literature on the subject although they lead to important theoretical implications. Data from Polish will hopefully shed more light on the interaction between morphology and syntax.

The layout of this monograph is as follows. It consists of a brief introduction (preceded by a list of abbreviations and acknowledgements), six main chapters, a concluding chapter, references, and an appendix. Chapter 1 offers a brief discussion of some crucial issues concerning morphological compounds from a cross-linguistic perspective. The notion of the

head is elaborated upon, selected compound typologies are mentioned, and some diagnostic tests are described which are used (in various languages) to distinguish between morphological compounds and syntactic phrases. The existence of a transition zone between compounds proper and free syntactic combinations is demonstrated. Chapter 1 closes with a concise introduction to some assumptions of Construction Morphology. Chapter 2 discusses morphological compounds and compound-like multi-word units in the English language. It exemplifies difficulties in drawing the boundary between English compound nouns proper and phrasal nouns. Syntactic behaviour of compounds and phrasal nouns is compared. RA+N combinations (e.g., *polar bear*, *postal service*, *solar panel*) and genitive compounds (such as *dog's ear* and *men's shoes*) are shown to exhibit word-like properties. Cases are discussed when NN compounds coexist with similar genitive compounds or with RA+N combinations. Chapters 3, 4, and 5 deal with the data from the Polish language. An overview is given of basic types of composite expressions in Polish in Chapter 3. Chapter 4 investigates word-like and phrase-like properties of several types of phrasal nouns which are traditionally referred to as "juxtapositions" (Pol. *zestawienia*). Chapter 5 discusses competition between Polish compounds proper and juxtapositions. It is argued that patterns for phrasal nouns are used productively in Polish to coin multi-word expressions which can "fill the gap" when a morphological compound is not available. In Chapter 6, an attempt is made to apply the theoretical apparatus of Construction Morphology to the analysis of compound nouns and phrasal nouns in both languages. Conclusions are formulated in the final chapter.

Compounds and phrasal nouns in a cross-linguistic perspective: Introductory remarks

The aim of this chapter is to elucidate the notion of compounds and elaborate on the distinction between compounds proper (i.e., morphological compounds), regular syntactic phrases, and compound-like multi-word units in a cross-linguistic perspective. In Section 1.1, apart from explaining the notion of the head of a compound, I introduce several compound classifications, commonly mentioned in the literature. I focus on the compound typology postulated by Bisetto and Scalise (2005) and Scalise and Bisetto (2009), since it will be adopted in the discussion of compounds and compound-like expressions in the remaining chapters of this monograph. In Section 1.2, I discuss some diagnostic tests that have been proposed so far (in various languages) to set apart compounds proper from canonical syntactic phrases (i.e., from free syntactic combinations). In Section 1.3, I point out the existence of multi-word expressions which are in-between morphological compounds and free syntactic combinations. Some terms are introduced which have been employed by morphologists to refer to compound-like units belonging to the "transition zone" between compounds proper and syntactic phrases. I will refer to such transition zone units as phrasal lexemes (in agreement with Booij 2009, 2010). Section 1.4 introduces some basic assumptions and the analytical "machinery" adopted by proponents of Construction Morphology (including Booij 2009, 2010; Hüning 2009; Masini 2009; Masini and Benigni 2012).

1.1 Defining compounds. Heads of compounds

The distinction between compounds and syntactic phrases is a topic addressed by a number of morphologists and syntacticians: both from a language-specific and a contrastive (or cross-linguistic) perspective (see, among others, Di Sciullo and Williams 1987; Spencer 1991; Ralli and Stavrou 1998; Bauer 2001, 2017; Plag 2003; Lieber and Štekauer 2009; Ralli 2013; Radimský 2015; Bağrıaçık and Ralli 2015).

Compounds are complex lexemes which consist of two or more stems (see Bauer 1983: 29).[1] Compounds resemble other morphologically complex words in exhibiting a binary structure: one of the constituents (usually the right-hand[2] constituent in English compounds) functions as the head,[3] and the other constituent is its modifier.

It is useful at this point to mention various properties attributed to heads in morphology (cf. Di Sciullo and Williams 1987), and the bifurcation of heads into types, as proposed by, among others, Scalise and Fábregas (2010), Fábregas and Scalise (2010), Masini and Scalise (2013), and Fábregas and Masini (2015) (and as also discussed by Cetnarowska 2016).

In the case of suffixal derivatives, the suffix is recognised as the head of the whole derivative (by virtue of determining the meaning and the syntactic category of the whole word). English affixal derivatives are right-headed, as stated in the Righthand Head Rule by Williams (1981) (see also Di Sciullo and Williams 1987). Thus, the suffix *-er* is the head of the derivative *driver*.

In the study of compounds (see Fabb 1998), especially in cognitive approaches to linguistics (Schmid 2011), the constituent which determines the meaning of the whole compound is regarded as its head. Endocentric compounds, such as *taxi driver* and *handbag*, are hyponyms of their head constituents (cf. Bloomfield 1933; Marchand 1969; Bauer 1983; Szymanek 1989). A taxi driver is a type of a driver (different from, for instance, a bus driver, a truck driver, or a tram driver). The compound *handbag* is a hyponym of the noun *bag* since it denotes a small bag carried by women (usually in order to hold personal items, such as keys, ID cards, and money).

Haspelmath (2002) points to the usefulness of distinguishing between semantic and formal heads of compounds. The semantic criterion (as illustrated above) can be used to identify the semantic head; hence, *driver* is the semantic head of *taxi driver*. Exocentric compounds (traditionally referred to as bahuvrihi compounds) are said to lack semantic heads.[4] The unexpressed semantic head of the English exocentric formations

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[1] Bauer (2001: 695) defines a compound as a lexical unit "made up of two or more elements, each of which can function as a lexeme independent of the other(s) in other contexts."

[2] In some languages, for instance, French and Italian, the head in compounds is the left-hand constituent.

[3] See, however, below for the discussion of coordinate compounds which contain two semantic heads.

[4] Some bahuvrihi compounds, for instance, *redskin* or *fathead*, can be treated as endocentric ones if their right-hand constituent (i.e., *skin* or *head*) is reinterpreted metonymically as denoting a person (see Booij 2005; Bierwiaczonek 2013).

pickpocket and *killjoy* could be formulated as 'person,' since *pickpocket* denotes a person who steals (money, documents, or other valuables) from someone's pocket (or someone's handbag) and *killjoy* denotes someone who spoils other people's pleasure. Exocentric compounds do, however, contain formal heads, which determine the category of the whole combination and serve as the locus of inflection. Scalise and Fábregas (2010) draw a distinction between three types of compound heads: semantic, morphological, and categorial ones. Morphological and categorial heads can be treated as subtypes of formal heads. A morphological head is the constituent which serves as the locus of inflectional endings. A categorial head determines the syntactic category of a given compound. Often the three types of heads coincide. For instance, the element *house* is both the semantic, categorial, and morphological head of the compound *greenhouse*. This compound denotes a type of a house (or a building), it is a noun (as its constituent *house*), and the inflectional endings are attached to the right-hand constituent *house* (cf. *greenhouses*). In the case of the English exocentric compounds *killjoys* and *pickpockets*, the right-hand elements function as categorial heads and morphological heads. For some exocentric compounds in English, the morphological head is not expressed overtly and the whole compound differs from its right-hand (stem) constituent in its inflectional paradigm.[5] This is visible in the case of AN, NN, and VN combinations in which the right-hand constituent shows an irregular plural form (e.g., *foot-feet*, *leaf-leaves*, *man-men*) while the resulting compound takes the regular plural marker, as in *bigfoot* (pl. *bigfoots*) 'a large, hairy, ape-like humanoid creature, supposedly found in north-western America,' *Maple Leafs* 'a professional ice hockey team from Toronto in Canada,'and *walkman* (pl. *walkmans*) 'a small portable cassette player with light headphones' (see O'Grady et al. 1996; Portero Muñoz 2004: 104).

Compounds can be classified in various ways and according to various criteria (see Bisetto and Scalise 2005; Bauer 2017). A syntactic criterion takes into account the syntactic category of compounds, dividing them into compound nouns, compound adjectives, compound verbs, and so on.

The focus of this monograph falls on compound nouns. When the categories of their constituents are taken into account, nominal compounds are usually divided into Noun+Noun compounds (*machine gun*, *teacher training*), Adjective+Noun compounds (*greenhouse*, *bonehead*), Verb+Noun

[5] Such English exocentric compounds resemble to some extent Polish compounds which belong to interfixal-paradigmatic formations (as discussed in Chapter 3), for example, *czarnoziem* 'chernozem.'

compounds (*rattlesnake*, *washbasin*), and Particle+Noun compounds (*afterbirth*, *background*).

Other compound classifications take into account the type of relationship that holds between compound constituents. Bauer (1983), Szymanek (1989), and Spencer (1991) distinguish between endocentric compounds (such as the above-mentioned *handbag*), exocentric compounds (e.g., *pickpocket*, *lazybones*), appositional compounds, and dvandva compounds. Appositional compounds, such as *boy slave* and *woman doctor*, denote an intersection of the sets denoted by each constituent separately, for instance, a set of women and a set of doctors. According to Spencer (1991: 311), the relationship of simple conjunction obtains between constituents of dvandva compounds, such as *Austria-Hungary* and *mother-child* (in the larger combination *mother-child bond*). The border between appositional compounds and dvandva compounds is blurred. Whereas Szymanek (1989: 51) lists *fighter-bomber* and *speaker-listener* as examples of dvandvas, Spencer (1991: 311) hesitates between treating *learner-driver* as a dvandva or an appositional compound.

Fabb (1998) divides compounds (cross-linguistically) into endocentric, exocentric, and co-ordinate ones.[6] The latter group subsumes both dvandvas and appositional compounds. Both constituents of co-ordinate compounds are said to exhibit properties of (semantic) heads.

Bauer (2008) observes that dvandva is not the most appropriate term to be used in referring to coordinate compounds in Indo-European languages. In English, for instance, the combinations *learner-driver* and *Hewlett-Packard* denote an accidental coordination of elements. Dvandvas proper, referred to as co-compounds by Wälchli (2005), express natural coordination of two or more semantically associated concepts, for instance, Khmer *khɔh trɔw* (lit. right wrong) 'morality.'

Olsen (2001, 2004) adopts a tripartite division of compound nouns into determinative, possessive, and copulative compounds. A modifier-head relationship can be postulated between constituents of determinative compounds. For instance, the left-hand constituent *computer* restricts the denotation of the right-hand (head) constituent *monitor* in the determinative compound *computer monitor*. In the case of copulative compounds, such as *poet-translator*, both constituents are equally important semantically. They denote properties (or concepts) attributed to the same referent. The copulative compound in question refers to a person who is both a translator and a poet. Possessive compounds correspond to (a subtype of) exocentric compounds. They "denote an entity character-

[6] Fabb (1998) identifies also synthetic (verbal) compounds (e.g., *taxi driver*, *window cleaning*), repetition compounds (e.g., English *higgledy-piggledy*), incorporation compounds, and compounds which contain bound elements (e.g., *television*, *ironmonger*).

ized by the property named in the compound" (Olsen 2001: 279). The possessive compound *greybeard* refers to an old man, while *yellowhead* denotes a small yellow-headed bush bird found in New Zealand.

Bisetto and Scalise (2005) divide compounds cross-linguistically into three basic types: subordinate, attributive, and coordinate compounds. They propose that compounds should be regarded as subordinate if there is a complement-head relation[7] between their constituents, as in the case of *bus driver*, *church history,* and *apron string*. The constituent *bus* functions as a complement (i.e., direct object) of the verb *drive*, which is the derivational base of the head constituent *driver*. The subordinate compound *church history* can be paraphrased as 'history of the church' and *apron string* – as 'string of the apron.' The compound *bus driver* is further classified by Scalise and Bisetto (2009) as a verbal-nexus subordinate compound, while *church history* and *apron string* are included in the class of ground subordinate compounds.

The difference between verbal-nexus and ground compounds corresponds to the distinction between synthetic (verbal) and root compounds (employed by, among others, Spencer 1991, Szymanek 1989, and Fabb 1998). A synthetic compounds in English contains a deverbal derivative (e.g., *driver*, *driving*) as its head. Predicate-argument relationship can be identified between constituents of synthetic compounds, for instance, a taxi driver is someone who drives a taxi. The head of root (i.e., primary) compounds is not a deverbal derivative, and both constituents of root compounds are often non-derived words, as in the case of *housewife* and *blackbird*.

Constituents of coordinate compounds can be linked by means of the conjunction *and*, for example, *poet-translator* 'poet and translator,' *sofa-bed* 'sofa and bed, i.e. a sofa that can be converted into a bed.'

Attributive compounds consist of an adjective and a noun, or a noun and a noun. In the case of A+N attributive compounds, such as *blue cheese*, *atomic bomb,* and *high school*, the adjective is a modifier of the head noun. In N+N attributive compounds, such as *ghost writer*, *snail mail*, and *sawfish*, the non-head expresses a property which is attributed to the head (often in a metaphorical way). For instance, *snail mail* denotes a regular postal system which is slow (like a snail) in comparison to emails. Scalise and Bisetto (2009) rename the attributive class (the term introduced by Bisetto and Scalise 2005) as ATAP compounds (i.e., attributive-appositive class). The attributive subgroup of ATAP compounds consists of A+N items, while the appositive group includes N+N items.

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[7] Scalise and Bisetto (2009) recognise compounds as subordinate also when the relation obtaining between their constituents is the adjunct-head relation, as in *tree eater* 'sb who eats on a tree.'

Each of the basic three classes of compounds in Scalise and Bisetto's typology can be further split into endocentric and exocentric ones. Relevant examples from English are provided in (1), and from Italian (following Masini and Scalise 2012) in (2).

(1) a. subordinate endocentric compounds: *coffee cup*, *bus driver*
b. subordinate exocentric compounds: *cutthroat*, *pickpocket*
c. coordinate endocentric compounds: *sofa bed*, *actor-director*
d. coordinate exocentric compounds: *mother-child (bond)*, *doctor-patient (gap)*
e. attributive endocentric compounds: *snail mail*, *greenhouse*
f. attributive exocentric compound: *bonehead*, *yellowhead*

(2) a. subordinate endocentric compounds: *capostazione* (lit. chief station) 'stationmaster'
b. subordinate exocentric compounds: *portalettere* (lit. carry-letters) 'mailman'
c. coordinate endocentric compounds: *poeta pittore* (lit. poet painter) 'poet painter'
d. coordinate exocentric compounds: *dormiveglia* (lit. sleep-wake) 'drowsiness'
e. attributive endocentric compound: *cassaforte* (lit. box strong) 'safe'
f. attributive exocentric compound: *piedipiatti* (lit. feet flat) 'cop'

Lieber (2009a, 2016) and Scalise and Bisetto (2009) show how Bisetto and Scalise's (2005) compound classification can be restated in Lieber's (2004) lexical-semantic approach. Lieber (2004) distinguishes two levels of semantic representation of lexemes and affixes: the body and the skeleton. The skeleton includes only those semantic features which are relevant for the syntax of a given language. The body contains two types of semantic information. One layer of the body contains universal semantic features which are not syntactically relevant in a particular language (hence they do not belong to the skeleton). The second layer of the body encompasses primarily encyclopaedic information, and it may differ between speakers (depending on how much specialised knowledge they have).

In coordinate compounds, the two constituents show "a perfect matching of the skeletons and a high level of matching in the features of the encyclopedic body" (Scalise and Bisetto 2009: 49). In the case of subordinate combinations, the skeleton is of no relevance to the way the head selects the non-head of a compound. At least one feature of the body of the head is expected to match the encyclopaedic feature of the non-head. In the case of attributive compounds, the non-head constituent should match at least one of the encyclopaedic features of the head. Lieber

(2009a: 90) exemplifies the matching of the skeletons and body features in coordinate compounds such as *scholar athlete* (3).

(3)	*scholar*	*athlete*
	[+material, dynamic ([$_i$])]	[+material, dynamic ([$_i$])]
	<animate>	<animate>
	<human>	<human>
	<function>	<function>
	{studies…}	{plays sport…}

She points out that the two nouns which form the above compound have the same skeleton features [+material] and [dynamic]. They both denote human agents; thus, they share the "formal" body features <animate>, <human>, and <function>. What differentiates them is the encyclopaedic information (located in the encyclopaedic body features).

Subordinate compounds are represented by the NN compound *cookbook author*, as in (4) (from Lieber 2009a: 94).

(4)	*cookbook*	*author*
	[+material ([$_i$])]	[+material, dynamic ([ ], [$_i$])]
	<-animate>	<+animate>
	<+artefact>	<+human>
		<function>
	{contains recipes…}	{writes things…}

The two constituents of *cookbook author* show differences in their skeleton features. The highest argument of the non-head *cookbook* is coindexed with the highest argument of the head. The nouns *cookbook* and *author* exhibit different formal body features and distinct encyclopaedic body features.

Lieber (2009a: 98) gives the following lexical semantic representation for the attributive endocentric compound *dog bed* (5).

(5)	*dog*	*bed*
	[+material ([$_i$])]	[+material ([$_i$])]
	<+animate>	<-animate>
	<-human>	<+artefact>
		<function>
	{four legs, wags tail, ...}	{for sleeping, ...}

According to Lieber (2009a) and Scalise and Bisetto (2009), the non-head in attributive compounds must fulfil at least one of the encyclopaedic fea-

tures of the head. In *dog bed*, the non-head *dog* specifies a property of the head *bed* (i.e., its purpose as a 'bed for a dog').

Arnaud and Renner (2014), who discuss NN composite units[8] in English and French, divide them in a slightly different way than the one suggested by Scalise and Bisetto (2009). Arnaud and Renner split composite expressions into two basic classes: subordinative and coordinative ones. Then they distinguish two subtypes of subordinative NN units, namely, attributive and relational units. In other words, the subordinative class in Arnaud and Renner's (2014) classification is larger than the subordinate group in Scalise and Bisetto's (2009) typology. It includes NN expressions whose constituents show a hierarchical structure: one of them is the head, while the other is the modifier. In attributive subordinative compounds (or compound-like expressions), such as English *crocodile clip*, *kidney bean*, and *bullet train*, or French *pince crocodile* (lit. pliers crocodile) 'crocodile clip' and *chapeau melon* (lit. hat melon) 'bowler hat,' some features of the non-head are attributed to the head (and the relation of analogy is employed). For instance, the compound *crocodile clip* denotes a clasp which resembles crocodile's jaws and which is used for creating temporary electrical connection. In the case of relational subordinative NN units, such as English *seaweed* and *firealarm*, or French *menu enfant* (lit. menu child) 'child menu,' their meaning can be represented by means of a predication, as shown in (6), following Arnaud and Renner (2014: 6–7).

(6) a. *seaweed*
location (SPACE) (weed, sea)
b. *firealarm*
be-against (alarm, fire)
c. *menu enfant* (lit. menu child) 'child menu' (French)
be-for (menu, child)

Coordinative NN compounds (and compound-like units) contain constituents which, according to Arnaud and Renner (2014), are co-hyponyms, for instance, *singer-songwriter* and *manic-depressive*, or French *guide-conférencier* 'guide-lecturer' and *obsessif-compulsif* 'obsessive-compulsive.'

Bauer (2017) regards [subordinative] and [attributive] as binary features which can be used jointly in the classification of compounds, and which can be combined with other binary features, such as [endocentric] and [argumental]. The feature [+/-subordinative] distinguishes subordinatives from coordinatives. The feature [+/-attributive] sets apart attributive and

[8] The term composite unit is used with reference both to morphological compounds and to phrasal nouns (as discussed in the sections to follow).

relational compounds. Compounds may be [+endocentric] or [-endocentric] (i.e., exocentric). Relevant examples of the compound classes identified for English by Bauer (2017: 113–114, 120–125) are provided in (7).

(7) a. Subordinative, attributive, endocentric compounds: *blackbird*, *governor general*
b. Subordinative, attributive, exocentric: *dimwit*, *redcap* 'porter, military policeman'
c. Subordinative, relational, endocentric: *windmill*, *houseproud* (A), *taxi-driver*
d. Subordinative, relational, exocentric: *egghead*, *fail-safe*, *show-down*
e. Coordinative, attributive, endocentric: *singer-songwriter*
f. Coordinative, relational, endocentric: *stir-fry* (V), *linguistic-philosophical* (A)
g. Coordinative, attributive, exocentric: *blue-green*, *Nelson-Marlborough*
h. Coordinative, relational, exocentric: *fly-drive* (N), *stop-go* (A)

According to Bauer (2017), compounds are [+argumental] if their interpretation is restricted by the predicate-argument structure (as in the case of *taxi-driver* or *hen-peck*). They are referred to as free (e.g., *centre stage*, *ape-man*) if they are [-argumental].

While the classifications proposed by Arnaud and Renner (2014) and by Bauer (2017) are worth investigating and they make interesting predictions about properties of compounds belonging to various classes, I will adopt (in the sections and chapters to follow) the compound typology postulated by Scalise and Bisetto (2009).

Masini and Scalise (2012) as well as Masini and Benigni (2012) have shown that the compound typology proposed by Scalise and Bisetto (2009) can be employed cross-linguistically to classify both compounds proper and compound-like multi-word units (e.g., in Italian and Russian). I will demonstrate in Chapter 5 that the tripartite division of composite units is particularly useful when discussing competition between morphological compounds and phrasal nouns in Polish.

When it comes to coordinate multi-word units in English and Polish, I will make use of their division into subtypes proposed for composite nouns in English, French, and Spanish by Arnaud and Renner (2014), Renner (2008) and Renner and Fernández-Domínguez (2011), that is, the division into multifunctional units, hybrids, and additional units. Multifunctional composite expressions, such as English *fighter-bomber* and *transmitter-receiver* or French *boucher-charcutier* 'butcher and pork-butcher' and *librairie-papeterie* 'bookshop and stationery shop,' can be paraphrased using the formula given in (8).

(8) An N1N2 is an N1 which/who is also an N2
A fighter-bomber is a fighter which is also a bomber.

Hybrid units, such as English *blues-rock* and *troutperch*, or French *gin-tonic* 'gin and tonic' and *gomme-résine* 'gum resin,' denote entities which result from a fusion or hybrid of two entities, as is suggested by the formula in (9).

(9) An N1N2 is a blend/hybrid of N1 and N2
Blues-rock is a blend of blues and rock.

Additional units, for instance, English *tractor-trailer*, *space-time*, and *rape-murder*, or French *chasse-cuillette* 'hunting and gathering,' can be identified using the test sentence given in (10).

(10) An N1N2 is an N1 plus N2
A tractor-trailer is a tractor plus a trailer.
Space-time is space plus time.

According to Renner (2008), coordinate VV compounds can be divided into three semantic classes, namely, synchronous compounds (*work-study*), asynchronous compounds (*copy-paste, stop-start*), and disjunctive compounds (*pass-fail*).

There are various semantic types of compounds, especially those that can be postulated for NN compounds. Schmid (2011: 123–124), who adopts the assumptions of Cognitive Linguistics, identifies the following set of semantic subclasses of N+N English compounds, where H stands for 'head constituent' and Mod for 'modifier constituent' (Table 1).

Table 1. Semantic categories in N+N English compounds (based on Schmid 2011: 123–124)

Semantic relationship	Examples
H denoting a person working in Mod	*barman*, *housewife*
H denoting a person belonging to group Mod	*policeman*, *police officer*
H denoting a container designed to contain/host/receive Mod	*art gallery*, *bedroom*, *cupboard*, *dustpan*, *keyboard*, *note book*, *timetable*, *witness stand*
H denoting a part of Mod	*backbone*, *bedhead*, *bed clothes*, *nutshell*, *pony tail*, *seat belt*, *weekend*
H denoting an object designed to be put at location Mod	*pocket money*, *wallpaper*
H denoting persons or objects located at Mod	*boatpeople*, *chairman*, *headline*
H denoting the source of Mod	*bullshit*, *candlelight*, *coal field*

However, as is aptly observed by Schmid (2011: 124), "assigning individual N+N compounds to groups of semantic relationships frequently seems arbitrary and is consequently open to criticism." Moreover, some ad-hoc compound nouns do not belong to any of those semantic subclasses and their interpretation is disambiguated by the context, as in *bike girl* 'the girl who left the bike' and *apple-juice seat* 'place in a restaurant or café taken by a person drinking apple-juice' (cf. Downing 1977). Semantic classifications of compound nouns are discussed in greater detail in Chapter 2 (with reference to English compounds).

1.2 Criteria for identifying morphological compounds (and setting them apart from syntactic phrases)

Some criteria for identifying compounds are discussed by, among others, Szymanek (1989), Plag (2003), Lieber and Štekauer (2009), and Ralli (2013). They will be illustrated in this section on the basis of cross-linguistic data (including English examples).

Compounds are conceptual units, as is observed by, among others, Lieber and Štekauer (2009: 7). Like affixal derivatives, compound words may show various degrees of semantic opacity. While the suffixal noun *teacher* is semantically transparent, and paraphrasable as 'one who teaches (professionally),' the nouns *diner* and *cruncher* show some degree of semantic opacity (i.e., some semantic unpredictability, or semantic surplus information). Instead of denoting a person who dines (i.e., someone who eats dinner), *diner* refers to a railway car in which one can eat dinner (or to a type of restaurant resembling a railway diner). *Cruncher*, in turn, apart from denoting a machine, person, or beast able to crunch something, can be used in the meaning of 'critical and decisive thing.'[9]

The semantic interpretation of numerous English compounds is straightforward and fully predictable, for instance, a *book-binder* denotes a person whose job is binding books, while *teacher training* denotes training provided for students who would like to become teachers. However, when they are conventionalised (i.e., institutionalised), compounds acquire additional semantic information (as observed by, among others, Bauer 1983). A *wheelchair* does not refer to just any kind of chair with wheels, since this name is traditionally applied to a kind of chair used by (physically) disabled, often elderly, people. A *waterbed* is a waterproof mattress filled with water, while a *rosebed* is a part of garden where roses grow.

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[9] See the *Collins English Dictionary* online (https://www.collinsdictionary.com/dictionary/english).

In the case of semantically lexicalised compounds, their meaning is not predictable. The noun *blackmail* does not refer to a black object and does not denote a kind of mail. As was mentioned in the previous section, the semantic head is missing in the case of exocentric compounds, such as *cutthroat* and *killjoy*. They do not denote a kind of throat or joy but a type of person. Semantic unpredictability is also visible in the case of some exocentric compounds in Polish, such as *łamigłówka* (break+LV+head+DIM) 'puzzle,' *wyrwidąb* (pull_out+LV+oak) 'muscleman,' and *nosorożec* (nose+LV+horn+SUFF) 'rhinoceros.'

Ralli (2013: 19–20) demonstrates that Greek morphological compounds are either opaque or transparent. The compound *kamilopátima* (from *kamíla* 'camel' and *pátima* 'step') is semantically non-compositional since it denotes a kind of plant with wide leaves. In contrast, the compound noun *tirosaláta* 'cheese salad' (from *tíri* 'cheese' and *saláta* 'salad') is transparent.

Compounds are expected cross-linguistically to constitute orthographic units. Morphological compounds in Greek meet this criterion, as shown by such items as *nixtopuli* 'night bird,' *kitrinoprasinos* 'yellow-green,' *anixtoxeris* 'open-handed,' and *ktinotrofos* 'cattle-breeder' (see Ralli 2009: 454–462).

In Romance languages, on the other hand, compounds can be written as single words, as separate orthographic words, or as hyphenated words. This is shown in (11) for Italian (following Masini and Scalise 2012) and for French in (12) (following Fradin 2009).

(11) a. *capostazione* (lit. chief station) 'stationmaster'
b. *poeta pittore* (lit. poet painter) 'poet painter'
c. *divano-letto*, *divano letto* (lit. sofa bed) 'sofa bed'

(12) a. *tournevis* (lit. turn screw) 'screwdriver'
b. *faux marcher, faux-marcher* (lit. false walk) 'to step or go awry'
c. *poisson-chat* 'catfish'
d. *rendez-vous* (lit. go to) 'appointment, date'

Spelling of English compounds is not consistent, either. Some English compounds are written as single words, for instance, *blackbird*, *homebody*, and *blackmail*. Compound constituents are sometimes linked with a hyphen, as in *life-size* and *word-formation*. Some compounds consist of separate orthographic words, for example, *sound technician* and *teacher training*.

Compounds are expected to resemble other complex lexemes (i.e., derivatives) in their inflectional properties. The inflectional endings are attached to the head constituent, which is the right-hand element in English

compounds, for instance, *paper* in *wallpaper* and *wall* in *paper wall* (the plural forms being *wallpapers* and *paper walls*, respectively). Alternatively, it can be proposed that the inflectional ending is attached to the (complex) stem of the whole compound, that is, *wallpaper-*. Such a solution is particularly welcome when the inflectional behaviour of the resulting compound differs from the inflectional properties of any of its constituents. For instance, *Blackfoots* can be used as the plural form of the compound noun *Blackfoot*, referring to a Native American tribe living in the northern Great Plain region.

Cross-linguistically, one can see that multi-word combinations in which each constituent is inflected separately are sometimes regarded as compounds proper. In Italian, there occur left-headed N+N and N+A compounds whose constituents are fully inflected, for instance, the endocentric compounds *capostazione* (lit. head station) 'station master' and *nave traghetto* (lit. boat ferry) 'ferry boat,' or the exocentric compounds *pescecane* (lit. fish dog) 'shark' and *Croce Rossa* (lit. cross red) 'the Red Cross.' Moreover, since the head takes the plural ending and is situated on the left, the plural marker is found "inside" such Italian compounds, as shown in (13) (following Masini and Scalise 2012: 85–86).

(13) a. *capostazione* (chief.SG station.SG) 'stationmaster'
a.′ *capistazione* (chief.PL station.SG) 'stationmasters'
b. *nave traghetto* (boat.SG ferry.SG) 'ferry boat'
b.′ *navi traghetto* (boat.PL ferry.SG) 'ferry boats'

Olsen (2015: 373) observes that in Romance left-headed compounds "pluralization disrupts the structural integrity of the words" when the left-most head constituent takes the plural ending, as in Spanish *hombres rana* 'frogmen' (sg. *hombre-rana*), Italian *vagoni letto* 'sleeping cars' (sg. *vagone letto*), and French *timbres-poste* 'postage stamps' (sg. *timbre-poste*). Moreover, Olsen (2001: 287–289) shows that both constituents of copulative (i.e., coordinate) compounds in Romance languages can occur in the plural form, for instance, Spanish *poeta-pintor* (lit. poet painter) 'poet-painter' and *poetas-pintores* (lit. poets painters) 'poet-painters,' French *guide-interprète* 'guide interpreter' and its plural *guides-interprètes* (lit. guides interpreters), and Italian *cassapanca* (lit. box seat) 'bench seat, a high-backed bench with storage space beneath the seat' and its plural *cassepanche* (lit. boxes seats).

Further examples of compounds whose both constituents can take plural inflectional endings are given in (14) from Italian (taken from Masini and Scalise 2012: 84–85). They include not only coordinate but also attributive compounds (e.g.,14 b–c).

(14) a. *studente lavatore* (student.SG worker.SG) 'student who also works'
a.′ *studenti lavatori* (student.PL worker.PL) 'students who also work'
b. *viso pallido* (face.SG pale.SG) 'paleface'
b.′ *visi pallidi* (face.PL pale.PL) 'palefaces'
c. *cassaforte* (box.SG strong.SG) 'strongbox, safe'
c.′ *casseforti* (box.PL strong.PL) 'strongboxes, safes'

Compounds are expected to show a specific stress pattern (different from the pattern of phrases or simple words). In Greek morphological compounds (as discussed by Ralli 2009 and Ralli 2013), there is a single lexical stress which falls on one of the last three syllables, as in *likóskilo* 'wolf-dog' (from *líkos* 'wolf' and *skílos* 'dog') and *rizóγalo* 'rice pudding' (from *rízi* 'rice' and *γála* 'milk'). The compounds in question have the antepenultimate stress, although their constituents are stressed on the penultimate syllables.

In English, rules of stress assignment treat compound words differently from syntactic phrases. The Compound Stress Rule is proposed in the classical version of generative phonology (as exemplified by Chomsky and Halle 1968). It predicts that the main stress will fall on the left-hand constituent (i.e., on the modifier) of English compound nouns, for instance, on *wall* in *wallpaper*. In syntactic phrases, on the other hand, it is the right-hand constituent which bears the main (phrasal) stress, for example, *paper* in the noun phrase *an interesting paper*. Some English compound nouns are right-stressed. Olsen (2000) points out that this is the case of compounds whose first constituent denotes material (e.g., *rubber 'band* and *silk 'shirt*) or expresses temporal or locational relation (as in *winter 'holidays*, *summer 'night*, and *hotel 'manager*).

Masini (2019) suggests that languages may differ as to which criteria are decisive in separating compounds from syntactic phrases. In Greek and in Slavonic languages (such as Polish and Russian), the presence of a linking vowel between the stems is characteristic of compounds proper, for instance, *-o-* in Greek *eryasioθerapía* 'job therapy' and *mavropínakas* 'blackboard,' *-o-* in Polish *zlewozmywak* (sink+LV+sink) 'washbasin,' and *-i-* (or *-y-*) in Polish *łamigłówka* (break+LV+head+DIM) 'puzzle.' For Italian, Masini (2019) regards the lack of explicit relational markers (such as conjunctions and prepositions) as indicative of compounds. Consequently, *mulino a vento* (lit. mill at wind) 'windmill,' *botta e risposta* (lit. blow and answer) 'tit-for-tat,' and *casa dello studente* (lit. house of the student) 'student hall of residence' are recognised as Italian phrasal lexemes, and not as compounds proper.

Moreover, Masini and Scalise (2012) and Masini and Benigni (2012) argue that constituents of Romance compounds are lexemes (or fully in-

flected words), while in Slavonic languages, they are (or can be) uninflected stems.

Fradin (2009) regards word order as an important diagnostic in identifying compounds in French: a multi-word unit must be recognised as a compound if it shows the constituent order which is impossible in syntactic phrases. Fradin (2009: 417) formulates Principle A, based on a similar statement from Corbin (1992: 50), to determine if a particular multi-word combination is a compound or a syntactic phrase (15).

(15) Principle A: Compounds may not be built by syntax (they are morphological constructs).

On the basis of Principle A, Fradin regards the French multi-word units *sans papiers* (lit. without papers) 'person without (identity) papers,' *pied-à-terre* (lit. foot on ground) 'pied-à-terre (i.e., small apartment, house, or room kept for occasional use),' and *boit-sans-soif* (lit. drink without thirst) 'drunkard' as syntactic expressions, since they can occur freely in sentences in this form (as syntactic phrases). On the other hand, the French multi-word combinations *porte-drapeau* (lit. bear standard) 'standard bearer,' *tire-bouchon* (lit. pull cork) 'corkscrew,' and *abat-jour* (lit. weaken light) 'lampshade' are treated by Fradin (2009) as V+N compounds, although the first constituent can be recognised as an imperative 2SG form or an indicative 3SG form. Due to the lack of articles, such V+N combinations are not acceptable as regular syntactic expressions (i.e., as VPs), as can be seen in *Pierre porte un drapeau* 'Peter bears a standard' and **Pierre porte drapeu*.

Yet another set of diagnostic tests which are helpful in setting apart compounds from syntactic phrases relates to the Lexical Integrity Principle and the cohesiveness of lexical items. As argued by, among others, Anderson (1992), syntactic operations have no access to word-internal structure. Various types of morphologically complex words, for instance, those resulting from processes of prefixation and suffixation, exhibit lexical integrity. Affixal derivatives cannot be split by any intervening linguistic material, as shown by the unacceptability of the form **kindandness*, resulting from the insertion of *and* in the middle of the word *kindness*. Their internal word order cannot be changed, as illustrated by the ill-formedness of **nesskind*.

Compounds also exhibit lexical integrity, for example, by disallowing changes in the order of their constituents. The word order of the subordinate compound *wallpaper* cannot be changed, since *paper wall* denotes a different entity (i.e., a type of a wall, and not a type of paper).[10]

[10] The order of constituents inside coordinate compounds can be changed, for instance, *hunter-gatherer* vs. *gatherer-hunter*.

Ralli (2013: 21) shows that the internal structure of morphological compounds in Greek, such as *ayrióyata* 'wild cat' (from *áyria* 'wild' and *yáta* 'cat'), is not visible to rules of syntax. No elements can be inserted inside the compound (i.e., the head *yáta* 'cat' cannot take an independent modifier, as in 16a) and the non-head cannot be coordinated with another modifier (16b) or accompanied by its own premodifier (16c). The left-hand element takes no inflectional ending (16d).

(16) a. insertion: **ayriomavrióyata* (intended meaning 'wild black cat')
b. coordination: **ayriokemeyalóyata* (intended meaning 'wild and big cat')
c. modification: **poliayrióyata* (intended meaning 'very wild cat')
d. compound-internal inflection: **ayriesóyates* (intended meaning 'wild cats')

The issue of lexical integrity of compounds and compound-like expressions will be discussed also in the next section, which is devoted to multi-word units which exhibit properties of both morphological and syntactic objects.

1.3 "Improper compounds," "syntactic compounds," "phrasal lexemes": Transition zone between compounds proper and syntactic phrases

The term improper compounds (or syntagmatic/syntactic compounds) is employed in Romance morphological studies to refer to N+PP naming units, such as French *chemin de fer* 'railroad,' Portuguese *casa de bahno* 'bathroom,' and Spanish *bota de lluvia* 'rain boot' (examples from Olsen 2015; for more discussion, see Rainer and Varela 1992 and Kornfeld 2009). They contain a semantically bleached preposition (i.e., *de* 'of,' *a* 'to' in French), and their constituents show no morphological or phonological unity. Kornfeld (2009) points out that Di Sciullo and Williams (1987) treat Romance improper compounds as "real" compounds, since they are conceptual units which show lexical integrity and do not undergo syntactic operations.

However, an additional assumption is made by Di Sciullo and Williams (1987) concerning Romance compounds. It is proposed that some of those compounds are generated by rules of syntax and by a morphological reanalysis rule, which applies to phrases (XP) and relabels them as heads (X^0). Such compounds are, in fact, treated as lexicalised syntactic phrases.

Kornfeld (2009) also notes that Spanish P+N combinations (with semantically "heavy," that is, "full" prepositions), such as *sinvergüenza*

(lit. without-shame) 'shameless' or *contraluz* (lit. against-light) 'backlight,' are regarded by morphologists either as proper compounds (because they often show phonological properties of single words), as improper compounds (because they are similar to syntactic PPs), or as prefixal derivatives. When discussing multi-word combinations in Greek, Ralli and Stavrou (1998) draw the distinction between A+N syntactic compounds,[11] such as *mavri lista* 'black list' or *psixros polemos* 'cold war,' and A+N constructs, for instance, *atomiki vomva* 'atomic bomb' and *turistiko epagelma* 'tourist profession.'

Both types of A+N combinations consist of inflected words, which are spelled as two orthographic words and constitute independent prosodic words. This is shown by the presence of two lexical stresses in the combinations *psixrós pólemos* 'cold war' and *atomikí vómva* 'atomic bomb,' where the first constituent is stressed on the final syllable, while the right-hand constituent has initial stress.

Syntactic compounds and syntactic constructs differ in this respect from morphological compounds proper, which in Greek, like in Slavonic languages, consist of stems connected by means of a linking vowel, for instance, *domat-o-salata* (tomato+LV+salad) 'tomato salad.' A+N combinations of the first type (i.e., syntactic compounds), such as *psixros polemos* 'cold war,' *tritos kosmos* 'third world,' and *uranio tokso* (lit. celestial arrow) 'rainbow,' are not semantically compositional; therefore, they are regarded as morphological constructions by Ralli and Stavrou (1998). In contrast, semantically regular A+N combinations, such as *turistiko epagelma* 'touristic profession,' *viomixaniki zoni* 'industrial zone,' *priniki dhokimi* 'nuclear testing,' and *musiki kritiki* 'music review,' are treated as products of syntactic processes (i.e., as A+N "constructs" composed in syntax).

Ralli and Stavrou (1998), as well as Ralli (2013) and Koliopoulou (2009), show that Greek A+N syntactic compounds exhibit lexical integrity. Their adjectival constituents cannot be modified (as shown in 17a–b) or coordinated with other adjectives (in 17c). Their order cannot be changed (as in 17d–e). It is not possible to double the definite article in this construction (see 17f), or to insert a parenthetical element (17g).[12]

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[11] Ralli and Stavrou talk about (idiomatic) A+N compounds and A+N constructs. Booij (2010: 181) employs the term syntactic compounds with reference to Greek A+N combinations of the former type (i.e., idiomatic ones), for instance, *mavri lista* 'black list.'

[12] Examples (17b-d) and (17f) come from Koliopoulou (2009: 63). Example (17a) is quoted after Ralli and Stavrou (1998: 245); (17e) and (17g) are taken from Ralli (2013: 258–259). The examples in (18b–c) come from Ralli (2013: 258), example (18e) from Ralli (2013: 259), (18a) from Ralli and Stavrou (1998: 245) and (18d) from Ralli and Stavrou (1998: 248).

(17) a. **metrios psixros polemos*
moderately cold war
b. **iδietera eθniki oδos*
especially national road
c. **eθniki ke kratiki oδos*
national and state road
d. **oδos eθniki*
road national
e. **polemos psixros*
war cold
f. **i eθniki i oδos*
the national the road
g. **o psixros, opos vlepete, polemos*
the cold, as you see, war

Syntactic constructs in Greek, such as *piriniki dhokimi* 'nuclear testing,' *atomiki vomva* 'atomic bomb,' *viomixaniki zoni* 'industrial zone,' and *θeatriki kritiki* (lit. theatrical criticism) 'drama review,' share some properties with syntactic compounds and morphological compounds, for instance, their adjectival non-heads cannot be premodified (18a). However, constituents of A+N constructs show greater syntactic independence. They allow word-order changes (18b), can be interrupted by some parenthetical expressions (18c), can appear in predicative constructions (18d), and allow article doubling (18e) (see Ralli and Stavrou 1998, Koliopoulou 2009, and Ralli 2013 for more examples).

(18) a. **sxetika piriniki dhokimi*
relatively nuclear testing
b. *vomva atomiki*
bomb atomic
c. *i viomixaniki, opos vlepete, zoni*
the industrial, as you see, zone
d. *afti i zoni ine viomixaniki*
this the area is industrial
e. *i θeatriki i kritiki*
the theatrical the criticism

Koliopoulou (2009) discusses multi-word expressions in Greek which consist of fully inflected words. She regards N+N.GEN units and non-reversible A+N combinations as "loose multi-word compounds."[13] While

[13] Moreover, Koliopoulou (2009) suggests that various types of multi-word units in Greek form a continuum between syntax and morphology. NN attributive structures,

the properties of A+N compound-like units were illustrated above, the lexical integrity and cohesion of N+N.GEN loose multi-word compounds, such as as *ayora eryasias* (market.NOM.SG job.GEN.SG) 'job market' and *krema imeras* (cream.NOM.SG day.GEN.SG) 'day cream,' are demonstrated in (19), following Kolioupoulou (2009: 63). It is not possible to insert an element between their constituents (as in 19a), to coordinate non-heads (19b), or to invert the order of the head and non-head (19c). The non-head is not visible to the syntactic operation of relativisation (in 19d).

(19) a. **ayora* *monimis* *eryasias*
market.NOM.SG permanent.GEN.SG job.GEN.SG
intended meaning 'market of a permanent job'

b. **ayora* *eryasias* *ke* *apasxolisis*
market.NOM.SG job.GEN.SG and occupation.GEN.SG
intended meaning 'market of a job or occupation'

c. **eryasias* *ayora*
job.GEN.SG market.NOM.SG
intended meaning 'job market'

d. * *ayora* *eryasias*$_i$, *tin opia*$_i$
market.NOM.SG job.GEN.SG that
intended meaning: 'market of a job that …'

Bağrıaçık and Ralli (2015) assert that although compounding produces lexemes, it is not restricted to a single module of grammar. Turkish compounds, for instance, are phrasal formations, built in the syntactic component.[14]

Ten Hacken (1992) proposes a very broad definition of compounds, which can subsume both morphological compounds and various types of multi-word expressions (e.g., RA+N combinations, such as *solar panel*). He defines compounds as follows (focusing on determinative, that is, subordinate and attributive, combinations).

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for instance, *leksi kliði* (lit. word key) 'key word' and *xora fili* (lit. country friend) 'friendly country,' or NN appositive structures, such as *metafrastis ðiermineas* 'translator-interpreter,' are closer to the phrasal end of the continuum, while loose multi-word compounds are more compound-like. A finer distinction between subtypes of multi-word units in Greek is presented by Ralli (2013).

[14] Their structure is derived in syntax, yet they share several features with morphological compounds, such as the ability to serve as names of concepts, possibility of undergoing semantic lexicalisation, and potential interaction with word-formation processes.

(20) A compound is a structure $[XY]_Z$ or $[YX]_Z$, such that:
- The reference of Z is a subset of the reference of Y;
- If S is a possible way of specifying Y, the reference of Z is determined by the range of S's that are compatible with the semantics of X;
- X does not have independent access to the discourse.
(ten Hacken 1992: 350)

Masini (2009) and Booij (2009, 2010) use the term compound in a narrower sense than ten Hacken (1992) does. They employ the term phrasal lexemes to refer to multi-word units which exhibit internal syntactic structure (similar to that of syntactic phrases), yet show a naming function (like affixal derivatives or non-derived words). Phrasal lexemes show some cohesion and lexical integrity (as was demonstrated above for Greek AN and NN.GEN phrasal nouns), yet they cannot be regarded as morphological objects. They consist of fully inflected words and allow for the internal application of syntactic rules of agreement and case assignment. As suggested by Booij (2010: 177) and Hüning (2010), the violation of this part of the Lexical Integrity Principle is acceptable in the case of phrasal lexemes, though unacceptable for morphological compounds. For instance, adjectival constituents of AN morphological compounds in German and Dutch do not carry the inflectional ending *-e*, while this ending is present in German or Dutch AN phrasal nouns.

(21) German morphological AN compounds
a. *Schnell+zug* 'fast train'
b. *Klein+geld* (lit. small money) 'small change'
c. *Dunkel+kammer* (lit. dark room) 'dark room'

(22) Dutch morphological AN compounds:
a. *groot+handel* (lit. big trade) 'wholesale'
b. *muziek+school* 'music school, conservatory'
c. *ijs+beer* (lit. ice bear) 'polar bear'

(23) German A+N phrasal nouns:
a. *saur-e Sahn-e* 'sour cream'
b. *grün-e Well-e* (lit. green wave) 'phased traffic lights'
c. *trocken-er Wein* (lit. dry wine) 'dry wine'

(24) Dutch A+N phrasal nouns
a. *donker-e kamer* (lit. dark room) 'dark room'
b. *vrij-e tijd* (lit. free time) 'free time, spare time'
c. *mobiel-e telefon* (lit. mobile phone) 'mobile phone'

Although phrasal nouns are not morphological compounds, they are treated by Booij (2009, 2010) and Masini (2009) as lexical items, since they denote complex concepts. Syntactic phrases, in contrast, have a descriptive function. Booij (2009: 222) compares, in this respect, the French syntactic phrase *verre de vin* 'glass of wine' (with a descriptive meaning) and the phrasal lexeme *verre à vin* 'glass wine' (which denotes a type of glass). A+N combinations in Dutch, such as *rode wijn* 'red wine,' can be ambiguous between the descriptive meaning (which signals their use as regular syntactic phrases) and the classifying meaning (in this particular case, referring to a type of wine).

Some phrasal lexemes undergo semantic lexicalisation, for instance, the following A+N combinations in Dutch: *hoge hoed* (lit. high hat) 'top hat,' *dood spoor* (lit. dead trail) 'deadlock,' *open haard* (lit. open hearth) 'fireplace,' and *vaste benoeming* (lit. fixed appointment) 'tenure' (see Booij 2009: 224 for more examples). Semantic lexicalisation can also be observed in the case of Greek phrasal nouns, such as *tritos kosmos* 'third world' or *uranio tokso* (lit. celestial arrow) 'rainbow,' and in the case of Italian phrasal nouns, such as *botta e risposta* (lit. blow and answer) 'tit-for-tat.'

Booij (2009, 2010), as well as Gaeta and Ricca (2009) and Gaeta (2016), emphasise the difference between the concept of a lexical unit and the concept of a lexeme. Booij (2009: 221) points out that lexical units can be built by means of syntactic construction schemas. Gaeta and Ricca (2009) employ the features [+/-morphological] and [+/-lexical] to highlight the difference between morphological compounds, phrasal lexemes (i.e., syntactic compounds), and free syntactic combinations. The feature [+lexical] marks morphological formations or morphosyntactic combinations which either exihibit idiosyncratic meaning, or which are entered in the (mental) lexicon due to their token frequency and naming function. Thus, "being a lexeme" and "being in the lexicon" do not mean the same. Gaeta and Ricca (2009) identify four types of units by means of the features in question, as shown in (25).

(25) a. [+morphological], [+lexical]
b. [+morphological], [-lexical]
c. [- morphological], [+lexical]
d. [-morphological], [-lexical].

The first type, (25a), subsumes established morphological compounds, which are recognised as lexical items and whose meaning often shows a "semantic surplus value." The last group, (25d), includes regular syntactic phrases. The combination of the features given in (25b) – [+morpho-

logical], [-lexical] – stands for morphological compounds which are not listed in the lexicon, since they are the output of a very productive morphological process. Phrasal lexemes are represented by the feature combination in (25c). They are not morphological objects (being built by rules of syntax), yet they are recognised as names for particular concepts.

Fernández-Domínguez (2019) applies the typology in (25) to data from Spanish. Group (25a) is exemplified by the Spanish compound *compraventa* 'buying and selling,' and group (25c) by the Spanish phrasal noun *dolor de cabeza* 'headache.' Non-lexicalised compounds (group 25b) are represented by a V+N compound, namely *sujetapapeles* 'paper clip.'[15]

A+N phrasal nouns in Dutch may undergo semantic concentration, and then the meaning of the whole multi-word combination is inherited by (i.e., projected onto) its first constituent. Booij (2009: 232) shows that the Dutch adjective *onbespoten* 'unsprayed,' which is attested in the A+N combination *onbespoten groente* 'unsprayed vegetables; eco-vegetables,' started to occur in the sense of 'ecological' in other phrasal lexemes, such as *onbespoten restaurants* (lit. unsprayed restaurants) 'eco-restaurants.'

Masini and Scalise (2012: 73) argue against the position taken by Bisetto (2004), who assumes that phrasal lexemes in Italian (i.e., expressions which she calls *poliremathiche*) must be non-compositional semantically, and should be treated as lexicalised phrases. Phrasal nouns can be fairly compositional cross-linguistically, for instance, Italian *carta telefonica* (lit. card phone.RA) 'phone card,' Dutch *vrije tijd* (lit. free time) 'free time, spare time,' or German *saure Sahne* 'sour cream' (see Booij 2010).

Phrasal AN nouns in Dutch can be coordinated with compounds proper, as in (26) (Booij 2010: 185).

(26) a. *Amerikaanse (talen) en Papoeatalen*
'American (languages) and Papua-languages'
b. *ijs(beren) en bruine beren*
'polar (bears) (lit. icebears) and brown bears'

Phrasal lexemes can interact with word-formation processes,[16] for example, the process of diminutive formation. The A+N combination *hoog*

[15] Fernández-Domínguez (2019) regards the string *farola de jardin* 'garden lamppost' as an example of group (25d), that is, free syntactic combinations, because its consituents "do not habitually co-occur." However, I will treat a similar N+RA combination in Polish, for instance, *lampa ogrodowa* (lamp garden.RA) 'garden lamp,' as a phrasal lexeme, which exhibits a naming function.

[16] Furthermore, phrasal nouns in Slavonic languages can function as input to morphological condensation (i.e. univerbation). The A+N lexeme *trestný kop* (penalty.RA kick) 'penalty kick' in Czech can be condensed to the suffixal form *trestň-ák* 'penalty kick' (Martincová 2015). The RA+N combination in Russian *glaznoj vrač* (eye.RA physician) 'oc-

hoedje (high hat.DIM) in Dutch, with the head noun exhibiting the suffix *-tje* or *-je*, does not mean 'hat which is small and high,' but is a diminutive form of the phrasal lexeme *hoge hoed* (high hat) 'top hat' (Booij 2009: 233).

Dutch A+N expressions, such as *oude mannen* 'old men,' can appear as constituents of compound nouns (written as one orthographic word), as in *oudemannenhuis* 'old men's home' (Booij 2019).

In Greek, AN syntactic compounds can be subject to derivational suffixation, that is, they may motivate semantically adjectives or nouns (which contain such derivational affixes as *-ik, -ia*, *-iti)*, as shown in (27) (taken from Ralli 2013: 247).

(27) a. *psixros polemos* 'cold war'
a.′ *psixropolemikos* 'cold-war like'
b. *tritos kosmos* 'third world'
b.′ *tritokosmikos* 'third-world like'
c. *elefθero epagelma* 'free profession'
c.′ *elefθeroepagelmatias* 'free lancer'
d. *mavri aɣora* 'black market'
d.′ *mavraɣoritis* 'black marketer'

The framework which is particularly suitable for the analysis of phrasal lexemes is Construction Morphology, as will be shown in the next section.

1.4 Phrasal lexemes and Construction Morphology

Booij (2009, 2010), Masini (2009), and Hüning (2010), who adopt the framework of Construction Morphology, argue that there is no clear-cut border between syntactic phrases and lexical items. This is in line with the assumptions taken by proponents of Construction Grammar (e.g., Goldberg 1995, 2006).[17] Both syntactic phrases and morphologically complex words are constructions, that is, conventionalised associations of form and meaning (or form and function). Constructions differ in their size, complexity, and degree of specificity, and they are stored in the constructicon (i.e., the mental lexicon). As far as their size and complexity are concerned, they range from words, through idioms, to complex syntactic constructions. This is shown in Table 2, which is based on Table 1 from

culist' can be replaced by the suffixal derivative *glaznik* (Masini and Benigni 2012). Morphological condensation in Polish is discussed in Chapter 3.

[17] Concise and comprehensive introductions to principles of Construction Grammar are offered by, among others, Szymańska and Śpiewak (2006) and Bierwiaczonek (2017).

Goldberg and Suttle (2010: 469) and Table 1.1 from Goldberg (2006: 5) but includes some slight modifications.[18]

Table 2. Examples of constructions, varying in size and complexity

Construction	Form/example
Word	*ornithology*, *avocado*
Complex word	*daredevil*, *shoo-in*
Idiom (filled)	*trip the light fantastic*, *what's up?*
Idiom (partially filled)	*jog someone's memory*, *send someone to the cleaners*
Covariational-conditional construction	Form: the Xer the Yer (e.g., *the more you think about it, the less you understand*)
Ditransitive (double object) construction	Form: Subj, V, Obj_1, Obj_2 (e.g., *He baked her a muffin*)
Passive construction	Form: Subj aux V_{pp} (PP_{by}) (e.g., *The hedgehog was struck by lightning*)

Apart from fully schematic and abstract templates, there occur more specific (intermediate) constructions, and the most specific constructions (which correspond to particular lexical items, idioms, or syntactic phrases). Goldberg and Suttle (2010: 469) assume that a more specific construction schema should be proposed "whenever something more than a combination of regular, simple constructions is needed," for example, when a construction shows a non-compositional reading or calls for a specific interpretation. Moreover, even fully regular (and compositional) patterns are recognised and stored if they are sufficiently frequent.

An actual utterance typically involves a combination (i.e., a unification) of several different constructions, which can be combined as long as they are not in conflict. The sentence *The boy kicked the ball* involves, for instance, the NP construction, the VP construction, the transitive construction, the subject-predicate construction, and "the individual constructions corresponding to each of the words" occurring in this example (see Goldberg and Suttle 2010: 470).

Networks of inheritance connect construction schemas which differ in their degree of schematicity. Features of a higher-level (i.e., more schematic) construction are inherited by a lower-level construction schema, unless the lower-level schema contains some more specific feature which contradicts the inherited one.

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[18] Goldberg (2006: 5) mentions morphemes, for instance, *pre-* and *-ing*, as the smallest size of constructions. Goldberg and Suttle (2010: 469) use the label "partially filled word (aka morpheme)" and represent this level of construction by the following expressions: *anti*-N, *pre*-N, V-*ing*. However, in Construction Morphology, words are assumed to be the smallest constructions, and affixes have no entries in the lexicon/constructicon.

This is shown by Arcodia (2012: 377), who formulates a hierarchy of word-formation schemas to account for endocentric compound nouns in Dutch. The schema given in (28) (from Booij 2010: 17 and Arcodia 2012: 375) is the abstract pattern for all Germanic endocentric right-headed compounds. The first part describes the form of the construction, while the second part (following the double-sided arrow) specifies the semantic interpretation. The schema in (28) indicates that the right-hand head constituent determines the meaning and the syntactic category of the whole compound, while the left-hand constituent acts as a modifier.

(28) $[[a]_{Xk}\ [b]_{Yi}\ ]_{Yj} \leftrightarrow [SEM_i \text{ with relation R to } SEM_k]_j$

As proposed by proponents of Construction Morphology (e.g., Booij 2010), each word is a linguistic sign, and it comprises information about its phonology, morphosyntactic features, and meaning. The semantic relationship between words which act as constituents of endocentric compounds is not made specific in the generic template in (28), since the template in question can be instantiated by various semantic types of endocentric compounds, for instance, *apple pie* ('pie whose main constituent is apple'), *window seat* ('seat which is located next to the window'), *knife wound* ('wound that is caused by a knife'), and *extension cord* ('cord which functions as an extension').

The category of compounds and of their constituents is represented in (28) by variables X and Y. However, it is postulated within the frameworks of Construction Grammar and Construction Morphology that schematic constructions undergo categorial and/or lexical specification. When Y is specified as N (Noun), the template in (28) gives rise to a lower-level schema instantiated by various types of endocentric right-headed nominal compounds (e.g., A+N and N+N combinations). This schema dominates, in turn, an even less general construction (instantiated by N+N endocentric compounds) in which X (i.e., the category of the modifier) is specified as N. In another lower-level schema, lexical specification can be observed, since the schema contains the Dutch lexeme *boer* (occurring here in the sense of 'seller,' and not the sense of 'farmer') as the right-hand head constituent. The nodes at the bottom of the hierarchy in (29), which is quoted after Arcodia (2012: 377), represent particular Dutch compounds (e.g., *visboer* 'fish seller, fishmonger,' *sigarenboer* 'cigar seller, tobacconist,' and *tijdschriftenboer* 'magazine salesman') which serve as instantiations of the higher-level schemas.

(29) $[[a]_{Xk}\ [b]_{Yi}\ ]_{Yj} \leftrightarrow [SEM_i$ with relation R to $SEM_k]_j$

$[[a]_{Xk}\ [b]_{Ni}\ ]_{Nj}$ (schema for all nominal compounds)

$[[a]_{Nk}\ [b]_{Ni}\ ]_{Nj}$ (schema for all noun-noun compounds)

$[[a]_{Nk}\ [boer]_{Ni}\ ]_{Nj} \leftrightarrow$'seller of $[a]_{Nk}$'

$[[vis]_{Nk}[boer]_{Ni}]_{Nj}$ $[[sigaren]_{Nk}\ [boer]_{Ni}]_{Nj}$ $[[tijdschriften]_{Nk}\ [boer]_{Ni}]_{Nj}$

Goldberg (2006: 220) argues that "lexicon and grammar are not distinct components, but form a continuum of constructions."[19] The interaction between syntax and morphology is an expected phenomenon. Booij (2010) observes that the same general construction pattern, for instance, A+N, may be instantiated by more specific syntactic constructions, as well as by phrasal lexemes.

Masini (2009) focuses on phrasal nouns, when discussing data from Romance languages and from Russian. Some examples of phrasal nouns in Italian are given in (30) (following Masini 2009: 257).

(30) a. $[N\ ADJ]_N$
carta telefonica (lit. card phone.ADJ) 'phone card'
anima gemella (lit. soul twin) 'kindred spirit'

b. $[ADJ\ N]_N$
doppio gioco (lit. double game) 'double-dealing'
terza mondo (lit. third world) 'third world'

c. $[N\ N]_N$
conferenza stampa (lit. conference press) 'press conference'
effetto serra (lit. effect greenhouse) 'greenhouse effect'

d. $[N\ PREP\ N/V_{INF}]_N$
casa di cura (lit. house of treatment) 'nursing home'
macchina da scrivere (lit. machine from writing) 'typewriter'

e. $[X\ CONJ\ X]_N$
botta e risposta (lit. blow and answer) 'tit-for-tat'
gratta e vinci (lit. scratch and win) 'instant scratch lottery'

f. Nominalised sentences
cessate il fuoco (lit. cease the fire) 'cease-fire'
nontiscordardimé (lit. not+you+forget+of+me) 'forget-me-not'

[19] See, however, Szcześniak (2014) for some arguments against the complete abandonment of the distinction between syntax and the lexicon.

Masini (2009: 265) postulates an inheritance hierarchy for abstract lexical constructions which are instantiated by phrasal lexemes in Italian. The abstract template $[X1\ CONJ\ X2]_Y$ represents various types of phrasal lexemes (of category Y), the meaning of which is related to the meaning of X1 and X2. A lower-level (i.e., intermediate) lexical construction exemplifies lexical specification (since it includes the Italian conjunction *e* 'and') and categorial specification. The construction consists of two verbs (linked by means of *e* 'and'), and the category of the whole phrasal noun is either N or ADJ. This intermediate lexical construction can be instantiated by a number of phrasal lexemes, such as *usa e getta* (lit. use and throw_away) 'disposable (object),' *tira e molla* (lit. pull and let_go) 'see-saw, playing fast and loose,' and *copia e incolla* (lit. copy and paste) 'copy and paste.' The inheritance hierarchy postulated by Masini (2009: 265) for the Italian V+e+V construction is presented in (31). The abbreviation I_I stands here for 'Instance Inheritance Links' (cf. Goldberg 1995).

(31) $[X1\ CONJ\ X2]_Y$ < a kind of Y that refers to a frame defined by X1 and X2 >
$\downarrow I_I$ ABSTRACT LEXICAL CONSTRUCTION

$[V1_{STEM}\ e\ V2_{STEM}]_{N/ADJ}$ < a kind of N/ADJ that refers to a frame defined by V1 and V2 >
$\downarrow I_I$ INTERMEDIATE LEXICAL CONSTRUCTION

$[copia\ e\ incolla]_{N\_EVENT}$ <copy and paste > PHRASAL LEXEME

As pointed out by Booij (2009, 2010, 2019) and Masini (2009), regular syntactic phrases and phrasal lexemes share their structure but not their function. Construction schemas for phrasal lexemes contain specification of their semantic interpretation. Moreover, as was pointed out in Section 1.3 above (and as will be illustrated in the following chapters), phrasal lexemes exhibit greater syntactic restrictions (compared to free syntactic phrases), which stem from their internal cohesion and lexical integrity.

When discussing various types of Greek A+N and N+N combinations (as identified by Ralli and Stavrou 1998), Booij (2009: 228) proposes to differentiate between morphological compounds, syntactic compounds (i.e., phrasal lexemes), and constructs by means of different representations (32).

(32) a. morphological compounds: $[N\ N]_{N^0}$. Example: $[[nixt]_{N^0}\ [puli]_N]_N$ 'night-bird'
b. syntactic compounds: $[A^0\ N^0]_{N^0}$. Example: $[[psixros]_{A^0}\ [polemos]_{N^0}]_{N^0}$ 'cold war'
c. constructs: $[A^0\ N^0]_{N'}$. Example: $[[atomiki]_{A^0}\ [vomva]_{N^0}]_{N'}$ 'atomic bomb'

In a similar manner, Booij (2019) postulates different structures for different types of N+V combinations in Dutch, which can function as naming units. The representation in (33a) is proposed for Dutch morphological N+V compound verbs, such as *hongerstaken* (hunger strike) 'to hunger strike' and *vaatwassen* (dish wash) 'to dishwash, to wash dishes,' which are formed mainly by back-derivation from corresponding agentive nouns terminating in *-er* or action nouns ending in *-ing*. The structure in (33b) is postulated for syntactic compounds (i.e., N+V phrasal verbs), such as *pianospelen* (piano play) 'to play the piano' and *zeezeilen* (sea sail) 'to sail at sea, to go ocean-sailing.' A syntactic compound consists of a bare (i.e., unmodified) verb and a bare noun, which are represented as N^0 and V^0. The formula in (33c) gives a representation for regular syntactic phrases, for example, the verb phrase *piano spelen* 'to play the piano.'

(33) a. morphological compound: $[[honger]_N\ [staak]_V]_V$; $[[vaat]_N\ [was]_V]_V$
b. syntactic compound: $[[piano]_{N^0}\ [speel]_{V^0}]_{V^0}$; $[[zee]_{N^0}\ [zeil]_{V^0}]_{V^0}$
c. verb phrase: $[[[piano]_{N^0}]_{NP}\ [speel]_{V^0}]_{VP}$

The issue of syntactic representations for English and Polish phrasal nouns and compounds will be discussed at greater length in Chapter 6.

Another notion from Construction Morphology which will be used in Chapter 6 is that of schema unification. As mentioned above in this section, Goldberg (2006) and Goldberg and Suttle (2010) assume that several (syntactic) construction schemas may be combined in the interpretation of a single sentence. Booij (2007, 2010) proposes to employ unified schemas in word-formation. For instance, the construction schema for English *-able* adjectives and the schema for coining negative adjectives with the prefix *un-* can be combined into a single complex schema presented in (34).

(34) $[un\text{-}A]_A + [V\text{-}able]_A = [un\text{-}[V\text{-}able]_A]_A$ (from Booij 2010: 42)

The unified schema in (34) signals the co-occurrence of two word-formation processes, namely, *un*-prefixation and *-able* suffixation in English. According to Booij (2007: 31), such a schema demonstrates that speakers of English (or of other languages) "will make use of short cuts in coining

complex words." The recognition of unified schemas is particularly useful when there are no attestations of lexemes which could serve as intermediate stages in the derivation. The potential base for the English adjective *unbeatable*, that is, the adjective ?*beatable*, is not an institutionalised word. Similarly, German negative adjectives ending in *-lich*, for instance, *unauffindlich* 'untraceable,' may lack corresponding non-negative equivalents, or such V-*lich* adjectives may postdate their complex *un*-V-*lich* counterparts (see Kempf and Hartmann 2018).

Another complex schema, given in (35), is proposed by Booij (2010) to account for the discontinuous affix *be-…-d* in Dutch (as well as in English), where denominal verbs paraphrasable as 'to provide with X' can be derived by means of the prefix *be-* and where the suffix *-d* marks a past participle.

(35) $[\text{be } [x]_{Ni} \text{ d}]_{Aj} \leftrightarrow [\text{provided with } SEM_i]_j$ (from Booij 2010: 46)

The postulation of the combined schema in (35), which links the *be-…-d* adjective directly with the nominal base $[x]_{Ni}$, accounts for the lack of corresponding *be-* verbs for some pseudo-participial *be-…-d* adjectives in Dutch, for instance, *behaard* 'hairy, having hair' and *bemost* 'having moss, moss-covered'. A similar unified schema proposed for English can account for the formation of adjectives, such as *bespectacled* 'wearing glasses' and *bejewelled* 'adorned with jewels,' where the corresponding *be-* verbs are not institutionalised (e.g., ?*bespectacle*) or are relatively rare (e.g., *bejewel*).

1.5 Summary

In this chapter, I reviewed briefly some diagnostic tests employed cross-linguistically in separating morphological compounds from free syntactic combinations. I showed, on the basis of data coming from various Indo-European languages (including Italian, Spanish, French, Dutch, German, and Greek), that there is a cline between compounds proper and canonical syntactic phrases. There occur multi-word combinations which, apart from showing compound-like characteristics, exhibit some properties typical of syntactic phrases. Such multi-word expressions which are intermediate between morphological and syntactic units are given various names, for instance, improper compounds, syntactic compounds, and phrasal lexemes. I intend to demonstrate that both the English language and the Polish language abound in phrasal nouns. I presented above some assumptions of Construction Morphology, since this theoretical model

allows for an adequate analysis of linguistic phenomena which seem to fall into the transition zone between syntax and the lexicon.

The next chapter will give an overview of compounds and phrasal nouns in English. Competition between both types of processes (i.e., morphological compounding and phrasal lexeme formation) will be discussed. Moreover, morphosyntactic behaviour of phrasal nouns in English will be investigated, to show their phrase-like properties as well as their syntactic restrictedness.

Compound nouns and compound-like multi-word units in English

This chapter focuses on nominal compounds and phrasal nouns in English, comparing their morphosyntactic behaviour and semantic range. Section 2.1 contrasts briefly various typologies of English compounds and mentions compound types which were not given attention in Chapter 1, including so-called dummy compounds and identical-constituent compounds. The subject matter of Section 2.2 is the semantic classification of English compound nouns. Levi's set of recoverably deletable predicates (RDPs) is discussed as well as the set of semantic functions postulated by Jackendoff (2010, 2016). Section 2.3 is devoted to difficulties in setting English compound nouns apart from syntactic phrases. Some common syntactic diagnostics are illustrated, such as *one*-replacement, coordination, and individual modification. Section 2.4 deals with English complex nominals which consist of relational adjectives and nouns (e.g., *solar energy*, *polar bear*). It is shown that they exhibit both phrasal and word-like properties. Some of those AN complex nominals are more compound-like, while others are closer to canonical noun phrases. Doubts concerning their status as lexical constructions or syntactic objects are commented upon. So-called genitive compounds (e.g., *bull's eye*, *men's shoes*, *lion's share*) are presented in Section 2.5. Section 2.6 discusses the coexistence of English compound nouns with adjective+noun complex nominals or with genitive compounds which consist of the same stems. The issue is considered whether NN compounds and corresponding phrasal nouns exhibit the same meaning or call for a different semantic interpretation.

2.1 Types of compounds in English (a general overview)

Plag (2003: 143), Lieber (2005, 2009b), Schmid (2011) and Szymanek (1989), as well as other authors of morphological textbooks or research papers, divide English compounds according to their syntactic category into compound nouns, compound adjectives, compound verbs, and com-

pound prepositions. A further division of those compound classes into subtypes is, in turn, sensitive to the category of compound constituents, for instance, NN compound nouns vs. AN compound nouns.

Plag (2003: 143) gives the following examples for each subtype of English compounds identified in his classification (1–4):

(1) Compound nouns
NN *film society*
VN *pickpocket*
AN *greenhouse*
PN *afterbirth*

(2) Compound adjectives
NA *knee-deep*
AA *light-green*
PA *inbuilt*

(3) Compound verbs
NV *brain wash*
VV *stir-fry*
AV *blackmail*
PV *downgrade*

(4) Compound prepositions
PP *into*

Schmid (2011) mentions N+[V+ing] compound nouns, such as *credit rating*, and [V+ing]+N nouns, for instance, *dancing girls*, as types which are distinct from NN compounds (*apple pie*) and from AN compounds (such as *greenhouse*).

Plag (2003: 143) notes gaps in the inventory of compound types in English. Compound prepositions are infrequent (there are no N+P or A+P prepositions), and the forms *into* and *onto* can be regarded as lexicalisations of co-occurring prepositions. There is no VA type among compound adjectives.

The identification of selected English multi-word units as compounds or derivatives gives rise to some controversy. There are multi-word units containing a P (preposition or particle), for instance, PN (*underpass*) or NP (*sit-in*), yet their status as compounds can be put in doubt (as observed by Spencer 2003 and Plag 2003). Plag (2003: 144) argues that the nouns *blowup* and *breakdown* are not Verb+Particle compound nouns but zero-derivatives from the phrasal verbs *to blow up* and to *break down*. Lieber (2009b) and Schmid (2011: 129) point out that the nouns *overcoat* and *underperformance*, or the verbs *overcrowd*, *underperform*, and *outdo*,

can be treated either as compounds or as derivatives with the prefix *over-*, *under-*, and *out-*. The prefixes *over-*, *out-*, and *under-* have a figurative interpretation, for example, *out-* 'to do better than someone or something,' *under-* 'to do worse than someone or something,' and *over-* 'to do more than necessary.'

When discussing verbs and nouns such as *download* and *income*, Plag (2003: 143) shows that they can be analysed not as compounds but as products of the inversion process, which is accompanied by stress shift, from the phrasal verbs *load down* and *come in*.

Concerning putative NV and AV compound verbs, such as *brainwash* (NV) and *blackmail* (AV), it can be argued that some of them result from the process of back-formation from NN compound nouns, for instance, *brainwashing* → *to brainwash* and *chainsmoker* → *to chainsmoke*, or from compound adjectives, for example, *proof-read* → *to proof-read* (see Szymanek 1989: 94–98 for such as a position). Other potential AV or NV compound verbs can also be treated as derived by means of conversion from compound nouns, as in the case of *shortcut* → *to shortcut* 'to take a short cut.'

According to Spencer (2003), the majority of English compound words consist of constituents which belong to the category of Noun or Adjective, for instance, *London bus* (NN), *blackbird* (AN), *icecold* (NA), or *icycold* (AA) (see Schmid 2011: 122 for a similar opinion). There are some compounds with a Verb constituent, such as VN (*swearword*, *pick-pocket*), NV (*lipread*), and VV (*drink-drive*). Spencer (2003) suggests that NN compounding is the only type of compounding which is productive in English. He observes that AN compounds in English are "essentially lexicalized phrases," while NA an AA combinations are "syntactic phrases in which the adjective is given an unusual specifier."

Bauer and Huddleston (2002) point out that left-headed NA compounds in English are old loans from French; hence, they are not productive, for instance, *court martial*, *Princess Royal*. Exocentric compounds are not productive either (e.g., *red-neck*, *hatch-back*), and they are often coined deliberately as humorous or ironic combinations.[1]

Quirk and Greenbaum (1973: 445–446) and Quirk et al. (1972, 1985) divide compound nouns and compound adjectives into several types (namely, into subject and verb compounds, verb and object compounds, verb and adverbial compounds, and verbless compounds) depending on their "grammatical meaning," that is, on their sentential paraphrase. Subject and verb compounds include compound nouns such as *headache*

[1] In the lexicalist level-ordered theory of morphology proposed by Giegerich (2009), these compounding types in English (i.e., NA compounds and exocentric compounds) belong to Stratum 1, while regular compounds are Stratum 2 formations.

(cf. *The head aches*) and *rattlesnake* (cf. *The snake rattles*). Verb and object compounds can be illustrated by the compound noun *dressmaking* (cf. *X makes dresses*) and the compound adjective *man-eating* (*X eats men*). Verb and adverbial compounds are represented by compound nouns such as *swimming pool* (*X swims in the pool*) and compound adjectives, for instance, *hard-working* (*X works hard*). In the case of verbless compound nouns and adjectives, the predicate employed in the sentential paraphrase is not overt but implicit in the compound structure, as in *windmill* (*The wind POWERS the mill*), *toy factory* (*The factory PRODUCES toys*), and *grass-green* (*X is green LIKE grass)*.

Quirk and Greenbaum's classification overlaps with the tradititional division of English compounds into synthetic and root compounds (see Bauer 1983; Plag 2003; Lieber 2004). As was mentioned in Chapter 1, synthetic compounds[2] contain a constituent which is a deverbal derivative, for instance, a deverbal agentive noun (*brick layer*, *truck driver*), a deverbal action noun (*truck driving*, *trash removal*), or a passive participle (*home made*, *lip read*). Compounds which do not belong to the synthetic class are classified as root compounds. While some of them do indeed consist of non-derived items (which are roots), for instance, *blackboard* and *ballpen*, this is not a necessary condition. Lieber (2009b) regards *driving school* and *maintenance schedule* as root compounds, since their right-hand constituent is not a deverbal derivative.

Liberman and Sproat (1992) identify argument-predicate compounds (i.e., synthetic compounds), such as *shock absorber*, *deer hunter*, *can opener*, and argument-argument compounds (e.g., *pie chart*, *keyhole saw*). The paraphrase of argument-argument compounds does not involve an overt predicate (in contrast to synthetic compounds; e.g., *deer hunter* 'one who hunts deer') but an implicit one, for instance, PURPOSE, as in *keyhole saw* 'a saw used to make keyholes.'[3]

Adams (1973: 60) employs, rather confusingly, a mixture of syntactic and semantic criteria in her compound typology. She identifies the following subtypes of English compounds: Subject-Verb, Object-Verb, Appositional, Associative, Instrumental, Locative, Resemblance, Composition/Form/Contents, Adjective-Noun, Names and Other.

Lieber (2009a, 2009b) applies Scalise and Bisetto's classification (discussed in Chapter 1) to English compounds. However, while Scalise and Bisetto (2009) assume that a complement-head relation (or an adjunct-head relation) obtains between constituents of subordinate com-

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[2] Useful overviews of theoretical issues concerning the derivation and interpretation of English synthetic compounds are offered by, among others, Spencer (1991: 323–343), Lieber (2005), and Kolbusz-Buda (2014: 70–81).

[3] The semantics of argument-argument compounds is discussed in the next section.

pounds, Lieber (2009a, 2009b) allows constituents of such compounds to hold the subject-predicate relation, as in *city employee*. Endocentric subordinate compounds are divided by Lieber into verbless ones (e.g., *table leg, cookbook author*) and verb-containing ones. The latter group includes, among others, synthetic compounds, with the object-oriented interpretation (e.g., *book writer*), subject-oriented interpretation (*city employee*), or adjunct interpretation (e.g. *home made*, *fresh baked)*. In two other types of verb-containing endocentric subordinate compound nouns, a zero-derived deverbal noun occurs either as their first constituent (*kick ball*, *attack dog*, *skate park*) or as the second constituent (*chimney sweep*, *sunrise*, *boat ride*). Lieber (2009b) includes in the verb-containing class also NV compound verbs (*head hunt*, *machine wash*, *spoon feed*), although she notes that they can be treated as back-formations. Exocentric subordinate compounds in English include few examples, such as *pickpocket, cutpurse,* and *spoilsport*.

Attributive compounds are regarded by Lieber (2009b) as the most numerous (and as the default) class in English. Endocentric attributive compounds are represented by NN compounds (*dog bed*), AN compounds (*blackboard*), NA units (*lemon yellow*), and AA units (*red hot*). Exocentric attributive compounds contain NN combinations (*bird brain*) and AN units (*red head*).

Coordinate compounds are either endocentric or exocentric. Endocentric coordinate compounds are further divided by Lieber (2009b) into two types: simultaneous and mixture ones. The simultaneous reading is exhibited by NN compounds, such as *director-producer* 'both a director and a producer,' VV compounds, such as *stir-fry*, and AA compounds (e.g., *deaf-mute*). The compound adjective *blue-green* represents the mixture coordinate compounds, since it can be interpreted as denoting a colour which is between blue and green.[4]

Exocentric coordinate compounds may be given the relationship reading, for instance, *doctor-patient (discussion)*, collective interpretation, as in *father daughter (dance)*, or disjunctive interpretation, as in *pass-fail.*

When discussing the range of English compounds, Bauer (1983), Szymanek (1989), and Lieber (2009b) identify the class of neoclassical compounds, which consist of initial and final (bound) combining forms, for instance, *telegraph*, *microscope*, *hydrogen*, *astrology*, and *biology.* Furthermore, Szymanek (1989: 45) and Lieber (2009b: 364) mention the existence of identical-constituent compounds, in which the stress falls on the left-hand constituent, as in *FRIEND friend* 'an ordinary friend, with no

[4] Terms used by Lieber (2009) may be compared with the semantic types of coordinate endocentric compounds postulated by Renner (2008) and Arnaud and Renner (2014), which were mentioned in Chapter 1.

romantic connection,' *QUESTION question* 'an ordinary question, not a rhetorical one,' and *NERVOUS nervous* 'very nervous.'

Lieber (2009b) follows Hohenhaus (1998) in identifying a group of dummy compounds, whose right-hand head constituent is a dummy element (*thing* or *business*), as in *the Enron thing.*

Moreover, there are phrasal compounds in English, in which the left-hand constituent is larger than a word. Lieber (2009b) defines phrasal compounds as combinations whose first constituent is a phrase, or even a whole sentence, while the second constituent is a noun. Relevant examples from English include *floor-of-a-birdcage taste, God-is-dead theology*, and *over-the-fence gossip*. Lieber (2009b) argues that these multi-word combinations are compounds, since the first (i.e., phrasal or sentential) constituent cannot be separated by any intervening material from the right-hand head, for instance, **a floor-of-a-birdcage salty taste*.

English phrasal compounds are discussed at length by Trips (2016); her examples are presented in (5) and (6) (Trips 2016: 158–160).

(5) a. the "I'm not going to miss out on the fun" brigade
    b. a make-or-break holiday
    c. a make-haste-slowly situation
    d. this "Steffi is great" attitude

(6) a. these "kind to hair" curlers
    b. a "chicken and egg" situation
    c. an under-the-counter version

In Trips (2016), the basic division runs between phrasal compounds containing a predicate (in 5) and not containing a predicate (in 6). Those containing full verb phrases as non-head constituents are often built in an ad-hoc manner and are treated by Hohenhaus (1998) as the result of syntactic processes. Those phrasal compounds which contain no predicate (and no full phrases) are regarded as lexicalised expressions by Hohenhaus (1998).

2.2 NN compounds in English: Semantic classes

According to Spencer (2011), when describing the semantics of NN compounds researchers make a choice between "Lees's solution" and "Downing's solution."

Downing (1977) studied novel compound words in English and observed that their interpretation is often determined pragmatically and that it is retrieved from the context. Apart from using compounds as naming

devices, speakers use them also as deictic devices, as in *apple-juice seat* 'seat with the apple juice setting' or *bike girl* 'girl with a bike.'

Downing's solution does not identify lists of discrete semantic functions to interpret NN compounds and employs the variable R function instead, which specifies the range of possible relations between constituents of compounds. Allen (1978: 93) assumes that the variable R Condition ensures "a matching of semantic feature content between the two constituents" (see Olsen 2012: 2125).

This line of thinking (that is, Downing's solution) is adopted by Booij (2009, 2010), who uses the pragmatically defined meaning relation R in the template for compound nouns in English (7).

(7) $[[a]_{Xk}\ [b]_{Yi}\ ]_{Yj} \leftrightarrow [SEM_i \text{ with relation R to } SEM_k]_j$

We can also mention the definition of compounds given by Guevara and Scalise (2009: 108), shown in (8).

(8) $[X\ R\ Y]_Z$

Here, X, Y, and Z represent major lexical categories, and *R* represents an implicit relationship between the constituents, that is, a relationship not spelled out by any lexical item.

On the other hand, there have been several attempts to divide English compounds into semantic subclasses by taking into account the implicit semantic relationship between their constituents, as reflected in a possible paraphrase of a particular composite lexeme. Several possible semantic typologies were proposed in the literature for English N+N compounds, including Lees (1960), Adams (1973), Levi (1978), Warren (1978), Ryder (1994), and Jackendoff (2009, 2010, 2016).

Levi (1978), working in the framework of Generative Semantics, recognises nine recoverably deletable predicates (RDPs) in the underlying forms of complex nominals. They state the relationship between two constituents of N+N compounds (as well as A+N combinations, see the next section). According to Levi (1978), these predicates are assumed to be deleted in the course of derivation. The following recoverably deletable predicates are postulated by Levi (1978): CAUSE, HAVE, MAKE, USE, BE, IN, FOR, FROM, and ABOUT.

Table 3. Recoverably deletable predicates in English N+N compounds from Levi (1978) (based on Warren 1984: 13 and ten Hacken 2009: 66)

Predicate	Examples
CAUSE	*tear gas*, *drug deaths*
HAVE	*government land*, *picture books*
MAKE	*honeybee*, *snowball*
USE	*steam iron*, *windmill*
BE	*soldier ant*, *pine tree*
IN	*field mouse*, *desert rat*
FOR	*horse doctor*, *headache pills*
FROM	*olive oil*, *apple juice*
ABOUT	*tax law*, *sports magazine*

Three of those predicates (i.e., CAUSE, HAVE, and MAKE) are reversible. According to Levi (1978), both the compound noun *tear gas*, roughly paraphrasable as 'gas which causes tears,' as well as *drug deaths* 'deaths caused by drugs' contain the predicate CAUSE at deep structure. She assumes that a single N+N compound has several underlying representations with distinct predicates. In the case of the compound noun *horse doctor*, one of those representations contains the predicate FOR (then the predicted interpretation of the compound is 'doctor for horses'), the second, the predicate BE ('doctor who is a horse'), and yet another, the predicate HAVE ('doctor who has horses') or the predicate USE ('doctor who uses horses'). When a compound is lexicalised, the ambiguity (as to which of the underlying predicates is selected) is removed. However, the meaning of a lexicalised compound may also depart from any of the available deep structure representations. Some problems with Levi's set of recoverably deletable predicates are mentioned by ten Hacken (2009). He points out that they are rather vague. For instance, in Levi's system, there is no way of explicating the semantic difference between *fertility pills* 'pills which enhance reproductive fertility' and *headache pills* 'pills taken to relieve headaches,' since both compounds contain the predicate FOR. Moreover, Levi's system of deriving N+N compounds allows any of her RDPs to be present in the underlying representation of a given compound, which (unfortunately) generates a number of non-occurring meanings of N+N units. For instance, the predicate ABOUT is unlikely to occur in the deep structure of the compound *steamship*, which would then call for the bizarre interpretation 'a ship which is about steam.'

Štekauer (2005, 2009) observes that there is always one or two dominant meanings of novel context-free N1N2 compounds selected by language users, for instance, *baby book* 'a book about baby care' or 'a book with photos of one's baby.' Those readings are motivated by the combination of prototypical features of objects denoted by N1 and N2, by speak-

ers' extralinguistic knowledge, and their experience. For instance, due to their extralinguistic knowledge, language users are likely to interpret *dog spade* as 'a spade used for scooping up a dog's excrement.'

Jackendoff (2010, 2016) adopts a different framework than Levi (1978), namely, the framework of Conceptual Semantics and Parallel Architecture (PA). He proposes a set of thirteen basic functions, which are similar to Levi's recoverably deletable predicates, yet no deep structure representations (with those functions) are postulated in his PA model. Jackendoff assumes that the semantics of N_1 and N_2 are connected by means of the above-mentioned functions in the speaker's conceptual structure. In other words, the functions are needed to fill out the slot for F in the Modifier Schema for N_1+N_2 right-headed compounds (whose constituents are represented by X and Y in the schema). X and Y are treated as arguments of the function F, with Y being the head (9).

(9) a. [F (...., X_1, ..., Y_2, ...)]
b. *Modifier Schema*:
[N_1 N_2] = [Y_2^{α}; [F (...., X_1, ..., α, ...)]]
'an N_2 such that F is true of N_1 and N_2' (Jackendoff 2016: 26)

Jackendoff's basic functions are enumerated in (10–22).

(10) *CLASSIFY (X, Y)*
[Y_2^{α}; [CLASSIFY (X_1, (α))]]. 'N_1 classifies N_2': *Leyden jar*, *Molotov cocktail*

(11) *BE (Y, X), 'Y is (also) an X'*
[Y_2^{α}; [BE (α, X_1)]], 'N_2 that is an N_1': *boy king*, *maiden aunt*, *compound noun*, *witch doctor*, *tractor-trailer*

(12) *SIMILAR (X, Y)*
[Y_2^{α}; [SAME/SIMILAR (α, X_1)]], 'an N_2 that is similar to N_1': *piggy bank*, *hairpin bend*

(13) *KIND (X, Y)*
a. [Y_2^{α}; [KIND (X_1 α,)]], 'an N_2 of kind N_1': *pine tree*, *limestone*, *girl child*
b. [Y_2^{α}; [KIND (α, X_1)]], 'an N_2 that is a kind of N_1': *seal cub*, *bear cub*

(14) *BE (X, AT/IN/ON Y)* [this function is reversible]
a. [Y_2^{α}; [BE (α, AT/IN/ON X_1)]], 'N_2 that is located at/in/on N_1': *window seat*, *tree house*, *house plant*
b. [Y_2^{α}; [BE (X_1 AT/IN/ON α)]], 'N_2 with N_1 at/in/on it': *garlic bread*, *icewater*, *inkpad*
c. [Y_2^{α}; [BE_{temp} (α, AT X_1)]], 'N_2 that takes place at time N_1': *spring rain*, *morning swim*

(15) *COMP (X,Y) 'X is composed of Y'* [reversible function]
   a. [Y_2^{α}; [COMP (α, X_1)]], 'N_2 composed of N_1': *rubber band*, *inkblot*
   b. [Y_2^{α}; [COMP (X_1, α)]], 'N_2 that N_1 is composed of': *wallboard*, *sheet metal*

(16) *MADE (X, FROM Y), 'X is made out of Y'* [reversible function]
   a. [Y_2^{α}; [MADE (α, FROM X_1)]], 'N_2 made from N_1': *grain alcohol*, *olive oil*, *apple juice*
   b. [Y_2^{α}; [MADE (X_1, FROM α)]], 'N_2 that N_1 is made from': *sugar beet*, *rubber tree*

(17) *PART (X, Y) , 'X is a part of Y'* [reversible function]
   a. [Y_2^{α}; [PART (α, X_1)]], 'N_2 that is part of N_1': *cigarette butt*, *oar handle*, *door knob*
   b. [Y_2^{α}; [PART (X_1, α)]], 'N_2 that has N_1 (count) as its part': *lung fish*, *wheelchair*
   c. [Y_2^{α}; [PART (X_1, α)]], 'N_2 that is composed in part of N_1 (mass)': *ginger bread*, *noodle soup*

(18) *CAUSE (X, Y), 'X causes Y'*
   [Y_2^{α}; [CAUSE (X_1, α)]], 'N_2 that is caused by N_1': *diaper rash*, *knife wound*

(19) *MAKE (X, Y), 'X makes Y'* [reversible function]
   a. [Y_2^{α}; [MAKE (X_1, α)]], 'N_2 made by N_1': *moonbeam*, *fingerprint*, *snake poison*
   b. [Y_2^{α}; [MAKE (α, X_1)]], 'N_2 that makes N_1': *honeybee*, *textile mill*, *songbird*

(20) *'X serves as Y'*
   [Y_2^{α}; [BE (PF (α), PF(X_1))]], 'N_2 whose (proper) function is to function as an N_1': *feature film*, *farmland*, *buffer state*

(21) *HAVE (X, Y) 'X has Y'*
   a. [Y_2^{α}; [HAVE (α, X_1)]], 'N_2 that has (an) N_1': *AIDS baby*, *career girl*
   b. [Y_2^{α}; [HAVE (X_1, α)]], 'N_2 that N_1 has': *writer's cramp*, *gangster money*

(22) *PROTECT (X, Y, FROM Z), 'X protects Y from Z'*
   a. [Y_2^{α}; [PROTECT (α, X_1 FROM Z)]], 'N_2 protects N_1 from something': *chastity belt*, *safety lock*
   b. [Y_2^{α}; [PROTECT (α, Z, FROM X_1)]], 'N_2 protects something from N_1': *mothball*, *cough drop*, *sun hat*

Jackendoff (2016) suggests that some of the functions given above can be further split into subfunctions, which include either the element PF (i.e., proper function) or CHAR (standing for characteristic). For instance, function (14a) can be rewritten as (23a) or (23b), depending on whether location is involved in the proper function of a given object (e.g., *kitchen sink*, *door mat*), or whether it is characteristic of the object denoted by a NN compound (e.g., *housefly*, *seabird*).

(23) a. [Y_2^{α}; PF [BE (α, AT/IN/ON X_1)]], 'N_2 whose proper function is to be at/in/on N_1': *kitchen sink*, *door mat*, *bathroom scales*
b. [Y_2^{α}; CHAR [BE (α, AT/IN/ON X_1)]], 'N_2 characteristically at/in/on N_1': *housefly*, *house plant*, *seabird*, *caveman*

The basic functions specified in (10–22) can be employed to account for the semantic interpretation of a large number of compounds, by incorporating the material from the semantic structure of NN constituents with the appropriate function, as shown for *coffee cup* and for *pigtail*. In the case of the endocentric compound *coffee cup*, the head noun (N_2) denotes a container for coffee (24).

(24) N_2 is a container:
coffee$_1$ *cup*$_2$ = [CUP_2^{α} ; [PF (HOLD ($COFFEE_1$, IN α))]]
(Jackendoff 2016: 32)

In the case of the exocentric compound *pigtail*, which denotes a type of hairstyle (and not a type of tail), there is a metaphor coercion schema invoked to shift the meaning of the compound,[5] as shown in (25), following Jackendoff (2016: 34–35).

(24) a. *Metaphor coercion*
N1 = [Z^{α}, SIMILAR (α, X_1)], 'something that is similar to X'
b. *pig*$_1$*tail*$_2$ = [$HAIR^{\alpha}$; (SIMILAR (α, [$TAIL_2$ (PIG_1)])]]
'hair that is similar to the tail of a pig'

The functions listed in (10–22) are not employed when N_1 is an argument of N_2 and receives a role from it. N_1 can be an inherent semantic argument of N_2, as in *wardrobe colour* 'a colour of wardrobe,' or it can be an argument of a deverbal N_2, as in *bus driver*, *hair dryer*, or *power supply*. The interpretation of such compounds (which fall into the subordinate group in Scalise and Bisetto's 2009 typology) follows from the Argument Schema given in (26) (after Jackendoff 2016: 25).

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[5] Instead of involving (only) metaphoric coercion, the interpretation of some English noun-noun (or adjective-noun) compounds may necessitate conceptual metonymy or metaphtony (i.e., interaction of metaphor and metonymy), as is shown by Benczes (2006) and Kuczok (2016). For instance, the construction of the meaning of the compound *muffin top* 'a roll of flesh spilling over the top of the trousers or skirt' involves CAUSE (muffin) FOR EFFECT (obesity) metonymy and the metaphor SHAPE OF BELLY IS TOP OF MUFFIN.

(26) a. *Argument Schema*
$[N_1\ N_2] = [Y_2\ (..., X_1, ...)]$ 'an N_2 of/by N_1'
b. $[N_1\ [_N\ V_3\text{-er}]_2] = [OBJECT_2^{\alpha}; [Y_3\ (INDEF, X_1, WITH\ \alpha)]]$: 'something that someone V_3's N_1 with': *hair dryer*, *windbreaker*, *flycatcher*

As is clear from the Modifier Schema given in (9) and from the Argument Schema in (26), Jackendoff (2010, 2016) treats English NN compounds as right-headed. Unfortunately, the assumption of a single (semantic and formal) head is not relaxed by Jackendoff in the case of coordinate compounds, which are regarded by other scholars (e.g., Fabb 1998; Renner 2008) as possessing two semantic heads. The function given above in (11), that is, *BE (X, Y) 'Y is (also) an X*,' in which Y is the head and X has the status of a modifier, is employed by Jackendoff (2016: 27) to compose the meaning of various subtypes of coordinate compounds, namely, multifunctional compounds (*politician-tycoon*), additive compounds (*tractor-trailer*), and hybrid ones (*apeman*).

Jackendoff's set of basic functions can be criticised for involving some degree of redundancy or overlap. The basic function CLASSIFY (X, Y) in (10) seems to subsume the function KIND (X, Y) in (13). The semantic structure of *pine*$_1$ *tree*$_2$, statable as $[TREE_2^{\alpha}; [KIND\ (PINE_1, \alpha,)]]$ by means of the function KIND, could be alternatively formulated by means of CLASSIFY as $[TREE_2^{\alpha}; [CLASSIFY\ (PINE_1, \alpha)]]$, where the modifier *pine* classifies the head *tree*. Moreover, while Jackendoff (2016: 27) assumes that the function KIND (X, Y) yields the meaning of *girl child* (roughly paraphrasable as 'a child who is of female kind, i.e., of female gender'), we could argue that the function BE (X, Y) is more appropriate in explicating the meaning of the compound in question, that is, 'a child who is a girl.' A potential way of countering this type of criticism is to refer to the notion of promiscuity. According to Jackendoff (2010, 2016), NN compounds are promiscuous rather than ambiguous. It means that a compound such as *boxcar* exhibits several meanings simultaneously, for example, *boxcar* 'car that carries boxes/ that resembles a box/ that serves as a box.' Jackendoff adds that the availability of several paraphrases for a particular compound noun (even if they pick out the same object) was noted earlier by other scholars. For instance, Lees (1960: 123) observes that various potential phrasal paraphrases of *pontoon bridge*, for instance, 'bridge supported by pontoons,' 'bridge floating on pontoons,' 'bridge made of pontoons,' and 'pontoons in the form of a bridge,' are equally appropriate as explications of the meaning of the compound noun in question when it refers to the same artefact.

Another potential objection raised against Jackendoff's (2010, 2016) system is that it is too complex. Apart from postulating thirteen basic functions, the proper function (PF), the Argument Schema, the Modi-

fier Schema, and the Metaphor Coercion, Jackendoff adopts the notion of cocomposition. Two or more basic functions can compose to create more complex semantic relations between compound constituents.[6] The semantic formula proposed for *piano bench* by Jackendoff (2016: 34) and quoted in (27) makes reference to the proper functions of pianos and benches and involves the basic function BE (X, AT/IN/ON Y).

(27) $piano_1$ $bench_2$ = [$BENCH_2^{\alpha}$;[PF (SIT^{β} ($PERSON^{\gamma}$, ON α); [BE_{temp} (β, AT [PLAY (γ, $PIANO_1$)])])]]
'a bench on which one sits, such sitting being while one plays the piano'

Jackendoff (2010: 449) himself admits that semantic formulas stated in his framework of Conceptual Semantics, for example, the formula for *piano bench* given above, look very complex, while the meanings of corresponding compounds seem to be fairly simple and transparent. However, he adds that the simplicity of paraphrases that can be offered for those compounds, for instance, *piano bench* 'bench on which one sits when playing the piano,' hides their internal complexity. Moreover, the availability of various theoretical tools (such as cocomposition and metaphor coercion) allows for stating semantic relations between compound constituents more precisely.[7]

2.3 How to identify compounds in English? Equivocal results of diagnostic tests

Some criteria employed cross-linguistically in identifying morphological compounds were mentioned in Chapter 1. Morphological compounds are often semantically nontransparent (e.g., *blackmail*). They are expected to be written as one orthographic word (or as hyphenated constituents). Only one constituent of morphological compounds takes the inflectional ending. The stress pattern of compound words is different from the stress pattern of phrases. As observed by many researchers, including Szymanek (1989), Bauer (1998), Giegerich (2009), and Lieber and Štekauer (2009), the application of those criteria to English data brings equivocal results.

Semantic opacity is not characteristic of all English compounds. The NN combinations *oak table*, *book review*, or *summer palace* function as naming units, and yet they are fairly transparent semantically, for in-

[6] For instance, Jackendoff (2010) combines the basic functions PART and SIMILAR to account for the meaning of *swordfish*.

[7] This advantage of Jackendoff's (2010, 2016) approach is also noted by Fernández-Domínguez (2016).

stance, *oak table* 'a table made of oak tree,' *summer palace* 'a palace used in summer,' and *book review* 'review of a book'.

Spelling is not a reliable diagnostic of compoundhood, either. Frequently, one can come across two or three orthographic variants of the same compound noun, as in the case of *handbags* and *hand bags*, or *flowerpot*, *flower-pot*, and *flower pot*. Liberman and Sproat (1992: 136) remark that short, frequent, and fossilised compounds tend to be written as single words, but the semantic (non)compositionality of NN or AN combinations has less influence on their spelling.

The attachment of inflectional endings to the (right-hand) head constituent of a NN combination suggests that it is a complex word, that is, a compound noun, for instance, *book reviews*, and not **books reviews*. However, there exist some English compounds in which the first constituent can occur in the plural form, such as *teeth marks*, *arms race*, *parks commissioner*, or *women writers*. This may be due to the idiomatic meaning of the modifier noun in the plural (cf. *arm* 'a part of human body' vs. *arms* 'weapons') or to the irregular plural form of the left-hand constituent (*tooth – teeth*, *woman – women*). The use of *parks*, instead of the singular form *park*, in *parks commissioner* may also indicate that the commissioner is in charge of several parks (and not of a single park). A similar explanation can be provided for the use of *examinations* (instead of the singular *examination*) in *examinations committee*, as attested in the names of boards, such as *The Examinations Committee of the Royal College of Ophthalmologists*, *Studies and Examinations Committee*, and *State Examinations Committee*. Another difficulty in applying the inflectional criterion to English data is pointed out by Bell (2012: 60–61). In inflected languages (e.g., in Slavonic ones, or in Greek), only the final (i.e., the right-hand) constituent of a compound noun is inflected, as shown by the Polish compound *półkotapczany* (shelf+LV+couch+NOM.PL) 'wall beds.' In English NN combinations, although the first element shows no inflectional ending, it can occur in such a form in isolation, for instance, *brick* in *brick houses* and *He threw a brick at me*. This could, in principle, be treated as an indication of the phrasal nature of all English NN sequences (although Bell does not take such a position).

Compound nouns in English are expected to have forestress, that is, to be stressed on their left-hand constituent, as in *'flowerpot*, *'blackbird*, and *'handbag*. The placement of stress on the right-hand constituent is usually indicative of the phrasal nature of AN combinations, such as *black 'birds* and *large 'pots (for 'plants)*. However, as was mentioned in passing in Chapter 1, stress placement cannot indicate unambiguously whether a given multi-word combination is a compound or a syntactic phrase in English. Bauer (1998: 70) shows that dictionaries differ in stating

the stress pattern of a particular NN combination. For instance, for the compound noun *nightwatch*, the *Chambers English Dictionary* (Schwarz and Frost 1988) recommends the initial stress (*'nightwatch*), while *Everyman's English Pronouncing Dictionary* (Jones 1977) suggests either the final or the initial stress placement (*night'watch* or *'nightwatch*). Spencer (2003) and Giegerich (2005, 2009) provide examples of NN (or AN) compounds with two stress patterns, which are linked to distinct semantic readings.[8] Giegerich (2009: 18) argues that end-stress (i.e., right-hand stress) indicates ascriptive attribution in NN or AN compounds, as in *woman 'doctor* 'a woman who is a doctor,' *toy 'factory* 'a factory which is a toy,' and *steel 'warehouse* 'a warehouse which is made of steel.' Ascriptive attribution ascribes a property (e.g., the property of being made of steel or the property of being a toy). By contrast, forestress (i.e., left-hand stress) indicates associative attribution in NN or AN combinations, such as *'woman doctor* 'a doctor for women,' *'toy factory* 'a factory which produces toys,' and *'steel warehouse* 'a building where steel products may be stored.'

Apart from the inflectional and orthographic shape, or semantic (non)-transparency, Bauer (1998), Giegerich (2009), and Bell (2012) mention syntactic criteria used in distinguishing between phrases and compounds. Coordination, individual modification, and *one*-pronominalisation are syntactic processes which have access to constituents of syntactic phrases but should have no access to constituents of complex words (such as compounds). Moreover, constituents of morphologically complex words are expected to be unavailable for anaphoric elements.

The constituents of the compound nouns *watchmaker*, *dressmaker*, and *dress wearer* cannot be coordinated, as shown by the ungrammaticality of **watch- and dressmakers*, or **dressmakers and wearers*.[9]

The non-head constituent of the phrases *a black bird* and *a white board* can be individually (i.e., independently) modified, for instance, *a very black bird* and *a brilliantly white board*. No modification is possible in the case of non-head constituents of compound nouns, as in **a very blackbird* or **a brilliantly whiteboard*.

One-replacement is a syntactic operation, hence it is not expected to apply to constituents of compounds. In the sentence *I'd like a red shirt and a green shirt*, the noun *shirt* (which is the head of a NP) can be replaced by the pronoun *one*: *I'd like a red shirt and a green one*. *One*-replacement is

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[8] Furthermore, Bell and Plag (2012) suggest that semantic lexicalisation and relative informativeness are additional factors which influence stress placement in English compound nouns.

[9] However, coordination may occur in selected prefixed derivatives (e.g., *pre- and post-war literature*).

not allowed in the case of compound nouns *watchmaker* and *dressmaker*, for instance, **a watchmaker and a dress one*. As demonstrated by Giegerich (2005), also in the case of semantically lexicalised AN compound nouns (or complex nominals), whose interpretation requires encyclopaedic information, as in *Foreign Office*, the head cannot be replaced by the pro-form *one*: **the Home Office and the Foreign one*.

Compound constituents should be unavailable for outbound anaphora (cf. Postal 1969). Consequently, the non-head constituents, such as *dress* in *dressmaker* or *sewing* in *sewing machine*, cannot be coreferential with the pronoun *it* in sentences such as *I went to the dressmaker and saw it* (where *it* cannot refer to the dress) or *Why did you buy a sewing machine if you don't like it?* (where *it* is not expected to be coreferential with *sewing*).

Bauer (1998), Giegerich (2009), and Bell (2012), among others, argue that there are mismatches between the application of the above-mentioned criteria in distinguishing between compounds and syntactic phrases in English. As shown by Bauer (1998: 77), the NN combination *sewing machine* behaves like a compound in showing forestress, disallowing individual modification of the non-head, and being listed in the lexicon (which suggests its institutionalisation and some degree of semantic opacity). However, the NN combination in question resembles a phrase in other respects, since it is written as two orthographic words, it can be coordinated (in 28b), and its head can be replaced by *one* (as in 28a).

(28) a. I wanted a sewing machine but he bought a knitting one. (Bauer 1998: 77)
b. a sewing or a knitting machine

Giegerich (2009) points out that forestress is attested in the case of NN combinations where the non-head constituent is either coordinated or independently modified, as in *open door policy*, *severe weather warning*.[10]

Moreover, while *cat-lover* is hyphenated and pronounced with forestress (as is expected of compound nouns), it allows outbound anaphora, as shown by Ward et al. (1991). Similarly, the pronoun *he* in (29b) is coreferential with the modifier noun *Constable*, while the pronoun *them* in (29c) is coindexed with the modifier *bicycle*. However, in the case of semantically opaque compounds (written as a single word), such as *cowboy* in (29d), the modifier noun *cow* is not accessible to the pronoun *them*.

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[10] For Giegerich, these would be compounds, since *open door* and *severe weather* can be treated as lexical units.

(29) a. So, I hear you're a *cat*-lover. How many do you have now? (TV game show, cited by Ward et al. 1991: 471)
b. We went up to *Constable* country; we stayed in the village *he* was born in. (Ward et al. 1991: 451)
c. Officials in the Danish capital believe they've found a way to stop *bicycle* thefts – let people use *them* for free. (Ward et al. 1991: 452)
d. Fritz is a *cow*boy. #He says *they* can be difficult to look after. (Ward et al. 1991: 454).

Consequently, the choice of distinct criteria of compoundhood as decisive diagnostics by various morphologists results in different judgments concerning the (compound) word-status or the phrasal status of a given NN or AN combination.

Some researchers adopt a very restrictive view of English compounds. Biber et al. (1999: 590) regard NN combinations in English as compound nouns only when they are written as single or hyphenated words. While *sunset*, *dressmaker*, or *cat-lover* fall then within the domain of compound nouns, the NN combinations *apple pie* or *sewing machine* are treated as phrases.

Jespersen (1942: 137) holds the view that compounds are necessarily non-compositional. Under such a view, the majority of NN combinations, such as *apple pie*, *iron bridge*, and *washing machine*, do not count as compounds (which disagrees with the position taken by many morphologists, including Bauer 1983, Bell 2012, Plag 2003, and Szymanek 1989).

Matthews (1991: 213), quoted by Bell (2012: 59), assumes that recursivity is the property of syntactic constructions, and not of word-formation. Therefore, he treats NNN, ANN, or NAN complexes not as compounds but as noun phrases. The (unwelcome) consequence of such a position is that while the AN combination *blackbird* is regarded as a compound noun, the ANN combination *blackbird nest* is treated as a phrase. Instead of following Matthews (1991), I will agree with Namiki (1994) and Snyder (2016), who recognise recursivity of endocentric compounds (in English or any other language) as a signal that (in that particular language) endocentric compounding is a productive process, which can be used in a creative manner, since it allows for an automatic formation of a novel compound whenever a need arises for such an item.

Payne and Huddleston (2002) assume that coordination and independent modification are the decisive diagnostics for distinguishing between NPs and Ns. They contrast, in this respect, the NN compounds *ice-creams*, *custard-creams*, *sunrise*, and *sunset* with the NN combinations they regard as phrases, namely, *blackcurrant sorbet*, *cooking apple*, and *desktop publishing* (as in 30).

(30) a. [*ice- and custard-] creams
b. ice-creams and custard creams
c. *[The sunrise and set] were both magnificent
d. The sunrise and the sunset were both magnificent.
e. I'd like [a blackcurrant and passion-fruit sorbet], please.
f. We sell [both cooking and eating apples].
g. [desktop and internet publishing]
(a–c and e–g from Payne and Huddleston 2002: 449–451)

They argue that the NN combination *London colleges* is a phrase (not a compound), since there exist the NAN or ANN combinations *London theological colleges* or *south London colleges*.

Payne and Huddleston (2002: 451) admit that their reliance on syntactic criteria (such as coordination and individual modification) results in the recognition of semantically opaque units as phrases. On this interpretation, the expressions *desktop publishing* and *internet publishing* are recognised as phrases, although their interpretation involves some "semantic surplus" (and throughout this book, they are treated as compounds). Payne and Huddleston (2002: 450) also suggest that compound nouns may be "coerced into passing the coordination test," for instance, when there is a device which combines several functions, as in "washing-, drying-, and pressing-machine."

The view that the majority of NN combinations in English are syntactic combinations is considered by Spencer (2003), who concludes that the productivity of NN compounding in English may be attributed to the fact that they "are formed by syntactic principles, not morphological ones."

Spencer's observation (about the phrasal status of NN sequences) can be linked to the controversy concerning the status of premodifying nouns. Bloomfield (1933: 233–234) states that a sequence of two nouns cannot be a syntactic construction; thus, *bedroom* and *door-knob* are necessarily compounds. In a similar vein, Burton-Roberts (2011: 148) regards NN combinations, such as *roof maintenance*, as compound nouns. He points out that the non-head element (i.e., *roof*) cannot be followed by other premodifiers, as in **roof expensive maintenance*.

By contrast, Payne and Huddleston (2002) and Giegerich (2009) allow nouns to act as premodifiers in NN sequences. In this respect, they follow Jespersen (1914: 310), who recognises "substantival adjuncts," such as *gold* in *gold jewellery* and *silk* in *silk shirts*.

Bell (2005) treats all NN combinations in English as compound nouns. However, she shows that some putative NN compounds can be treated as phrasal AN combinations when their first constituent allows adverbial premodifiers, as in (31).

(31) a. an exactly three-minute call
b. the roughly four-mile stretch
c. our totally cotton duvet
d. a completely paper tiger

Bell (2012) discusses at greater length the possibilities of individual modification of NN combinations in English as a way of drawing the boundary between compound nouns and NPs. She investigates a large number of ANN and NAN sequences, randomly selected from the BNC corpus. She draws the conclusion that the difference between morphological and syntactic objects (i.e., between compound nouns and noun phrases) is gradient and usage-based. She points out that the occurrence of [[AN_1] N_2] combinations, such as *right hand man*, *floating rate loans*, and *adjustable back rucksacks*, is determined by the availability of AN as a (semantically) lexicalised or institutionalised expression (which has the distribution of a noun and thus can be treated as a compound noun, e.g., *right hand* as an AN constituent of *right hand man*). Some AN sequences in [N [AN]] expressions are also lexicalised, and the adjectival constituent is not available for adverbial modification. However, the availability of [N_1 [AN_2]] sequences (and their status as phrasal or morphological objects) also depends on the type of the first constituent (i.e., N_1). N_1 is often a proper noun, as in *York Archaeological Trust* or *Ipswich northern bypass.*

Wasak (2018) studies the frequency of two-noun (i.e., NN) English compounds in the BNC corpus. He shows that those two-noun compounds which occur most frequently (e.g., *health care, income tax, stock exchange*) are likely to occur as constituents of multi-noun compounds, such as *Health Care Cover Relocation Assistance*, *income tax settlement code,* and *Stock Exchange class consents procedures*. Like Bell (2012), Wasak (2018) proposes that the lexicalisation of NN compounds is a prerequisite for their embedding within a larger compound unit.

An interesting proposal put forward by Bell (2012) is the recognition of a class of "modifier nouns." They occur as the first (i.e., modifier) constituent of N_1N_2 sequences more often than as the second (i.e., head) constituent. They are exemplified by such items as *minority*, *rebel*, *trademark*, *twin*, and *weekend*, as attested in the sequences given in (32).

(32) a. minority Russian populations
b twin heart-shaped pockets
c. a weekend residential session.

Modifier nouns in (32) show the distribution of adjectives in spite of having the morphology of nouns. Material nouns, such as *canvas* and *brass*

(as occurring in *brass bottomless bowls* and *canvas brown trousers*), are treated by Bell (2005, 2012) as a subgroup of modifier nouns.[11] When the N_1 constituent is a modifier noun, or may be treated as a compound adjective (e.g., *seventy-acre* in *the seventy-acre industrial site*), the adverbial modification of A(djective) may be attested, as in *third world rapidly expanding populations*. This makes the NAN sequence more phrase-like.

In the next section, we will look at English AN combinations which are transitional between compounds and phrasal combinations.

2.4 Relational Adjective (RA)+Noun combinations

Sequences consisting of relational adjectives (also referred to as associative adjectives) and head nouns exhibit some compound-like as well as some phrasal properties. Relational adjectives are derived from base nouns by means of derivational suffixes, such as, for example, *-al*, *-(i)an*, *-ic*, *-ical*, and *-eous*, as in *finance* + *-ial* → *financial* (see Szymanek 1985: 46–93 for a thorough investigation of constraints on the derivation of English relational adjectives). Giegerich (2005, 2009) uses the term associative adjective to include, apart from denominal relational adjectives, also so-called collateral adjectives (discussed by Koshiishi 2002), which are of Romance origin and which are related semantically, but not morphologically, to English native nouns, for instance, *solar* (cf. *sun*), *feline* (cf. *cat*), and *dental* (cf. *tooth*).

Relational adjectives call for the fairly vague interpretation 'related to N, pertaining to N, associated with N.' This interpretation is made more specific depending on a particular AN combination, for instance, *dental decay* 'decay of teeth,' *electrical* (or *electric*) *clock* 'a clock powered by electricity,' and *electrical engineering* 'a discipline which deals with the study and application of electricity' (see Szymanek 1985 and Post 1986 for more examples).

Cross-linguistically, relational adjectives show the semantics of nouns (as observed by Spencer 2013). They resemble nouns and differ from canonical adjectives (which show a qualitative reading) in some of their syntactic properties (as noted for English by, among others, Levi 1976, 1978 and Warren 1984). For instance, they are not gradable and cannot be pre-

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[11] Portero Muñoz (2004: 101) regards English NN combinations with material nouns, such as *cotton shirt*, as free syntactic combinations. She employs the criterion of unreplaceability and argues that *cotton shirt* is a regular noun phrase, since the modifier constituent can be easily replaced by another material noun, as in *silk shirt* and *rayon shirt*. I take a different position. I argue in Chapter 4 that paradigmatic substitution (i.e., the possibility of replacing a constituent) is a feature of productively formed and endocentric phrasal nouns in Polish.

modified (in contrast to other adjectives, such as *skilled* and *experienced*), as shown in (33a, b). They do not (normally) appear in the predicative position (see 33c). As indicated in (33g–h), nouns (e.g., *cattle*) cannot (directly) follow copula verbs and they are not gradable.

(33) a. *We hired a more electrical engineer.
b. *We hired an extremely electrical engineer.
c. *The engineer we hired was electrical.
d. We wanted a more experienced engineer.
e. We hired a highly skilled engineer.
f. The engineer we hired was experienced and skilled.
g. *The disease was cattle.
h. *this very cattle disease

Relational adjectives occupy the position closest to the head noun and cannot be followed by a qualitative adjective, such as *tall*, *experienced*, or *unknown*, as demonstrated by **an electrical tall engineer* vs. *a tall electrical engineer* and **an electrical experienced engineer* vs. *an experienced electrical engineer*. This "closest to the head" position is also characteristic of noun modifiers, for instance, **a cattle unknown disease* vs. *an unknown cattle disease*.

RA+N combinations may show semantic opacity and their interpretation necessitates extralinguistic knowledge, for instance, *polar bear* 'a type of bear with white fur that lives in the Arctic and feeds on seals,' *solar panel* 'a device which absorbs the sun's rays and converts them into electricity or heat,' and *natural history* 'a scientific study of animals and plants.'

Moreover, some RA+N sequences show forestress (typical of compounds), as in *postal service*, *dental treatment*, *mental hospital*, *medical building*, *athletic facility*, *solar system*, *solar panel*, and *polar bear* (see Giegerich 2005: 587; Liberman and Sproat 1992). Importantly, like nouns, RAs can occur as constituents of naming units, as in (34). Like NN compounds, RA+N units are recursive (see 35).[12]

(34) a. the Royal Collection
b. academic teaching
c. natural gas
d. nuclear physics
e. Solar System
f. arctic fox
g. electrical engineering

[12] Examples (34–38) come from various institutional websites.

(35) a. senatorial committee
b. Republican Senatorial Committee
c. National Republican Senatorial Committee
d. the Philharmonic Orchestra
e. the Royal Philharmonic Orchestra
f. Advisory Board
g. Presidential Advisory Board

As can be seen in (36), RA+N complexes often occur as complex modifiers of endocentric nominal compounds.

(36) a. [academic teaching] development
b. [governmental client] training
c. [vocal tract] imaging
d. [natural history] museum
e. [operational semantics] rules
f. [historical linguistics] problems
g. [Canadian Identity] Programs
h. [natural gas] supplies
i. [nuclear physics] laboratory
j. the [Royal Collection] Trust
k. [electrical engineering] terms

RA+N combinations can also be employed as complex heads of nominal compounds (see 37).

(37) a. Museum [Fungal Problems]
b. Punjab [Agricultural University]
c. Zoology [Deparmental Honors]
d. coral reef [tropical fish]
e. freshwater [tropical fish]
f. Massachusetts [General Hospital]

One can frequently come across coordination of RAs and Ns as premodifiers of compounds, as in (38).

(38) a. Cognitive and Information Sciences
b. Departmental and Faculty Libraries
c. most common grammatical and punctuation errors made by undergraduates
d. tourist and interpretive centers
e. Cultural and Heritage Tourism

f. The School of Biological and Conservation Sciences
g. BSocSc in Industrial, Organisational and Labour Studies (BSocSc=Bachelor of Social Science)

RA+N strings resemble NN compounds in giving rise to so-called bracketing paradoxes (discussed by Spencer 1991: 413–415). The compound noun *baroque flutist* is related semantically to the compound noun *baroque flute*, although one would expect its derivation to involve the concatenation of *baroque* and *flutist*. Similarly, the RA+N combinations *nuclear physicists* and *social scientists* are semantically motivated by the RA+N complexes *nuclear physics* and *social science*, although the derivation of *nuclear physicist* from *nuclear physics* by attaching the suffix *-ist* would violate the Lexical Integrity Principle (which forbids affixes to attach to syntactic phrases or phrase-like expressions). Some more examples of bracketing paradoxes are provided in (39).

(39) a. atomic scientist (cf. atomic science)
b. social worker (cf. social work)
c. civil servant (cf. civil service)
d. moral philosopher (cf. moral philosophy = ethics)
e. electrical engineering (cf. electrical engineer)

Levi (1978) treats all RA+N units as lexical constructions.[13] She points out that RA+N strings can be synonymous with NN compounds (as shown in 40).

(40) a.	atomic bomb	a.′ atom bomb
b.	viral disease	b.′ virus disease
c.	sexual maniac	c.′ sex maniac
d.	syntactic seminar	d.′ syntax seminar
e.	phonetic laboratory	e.′ phonetics laboratory

She refers to NN and RA+N units as complex nominals and assumes that recoverably deletable predicates (such as MAKE, CAUSE, FOR) can be employed to predict the meaning of both English NN compounds and AN complex nominals. For instance, CAUSE can be used in paraphrasing *virus disease* and *viral disease*.

Liberman and Sproat (1992) regard a small number of RA+N combinations as compound nouns, namely, those with forestress, such as *solar heat* or *medical building* (i.e., AN combinations reanalysed as N^0).

[13] A similar decision is taken by ten Hacken and Kwiatek (2013: 87), who regard *solar panel* as a compound.

It can be added that the analysis proposed by the two above-mentioned scholars refers to combinations of nouns either with relational adjectives or with non-derived adjectives. Liberman and Sproat treat *red line*, *black belt*, and *square knot* (which show left-dominant stress) as lexical structures, just like RA+N *medical building* and *athletic facility*. RA+N combinations with right-dominant (i.e., final) stress, for instance, *solar 'battery*, as well as NN combinations with final stress, as in *rubber boots* and *steel plates*, are treated by them as phrasal units, that is, as N1–level (N′-level) constructions.

Sadler and Arnold (1994) use the term "strongly lexical constructions" (instead of compounds) when referring to AN combinations such as *solar heat* or *medical building*. They show that prenominal adjectives in strongly lexical constructions cannot be coordinated, as is indicated by the unacceptability of the putative string **solar and lunar heat*. This is reminiscent of the impossibility of coordinating modifiers of selected NN compounds, such as **dress- and watchmakers* (as discussed by Payne and Huddleston 2002). Modifiers of strongly lexical constructions do not allow independent modification. Heads of strongly lexical constructions cannot be deleted and cannot be replaced by the pro-form *one*. On the other hand, Sadler and Arnold (1994) recognise the class of "weakly lexical constructions," such as *dry heat*. This AN combination is institutionalised and shows some semantic opacity, as it can be paraphrased as 'hot temperatures with little moisture in the air' (*Merriam-Webster Dictionary*). It cannot be postmodified, as is evident from the unacceptability of the phrase **dry for many days heat*. However, the AN complex in question allows for coordination, as in *dry and unpleasant heat*, exhibits phrasal stress, and undergoes *one*-replacement.[14]

Giegerich (2005, 2009) studies in detail AN combinations in English (not limiting his attention to those containing relational adjectives). He investigates their semantic transparency, stress placement, and the possibility of *one*-replacement, attempting to separate phrasal constructions from lexical ones. He demonstrates that AN strings which contain associative adjectives and which exhibit semantic opacity and forestress, such as *'Foreign Office*, *'verbal equinox*, *'criminal lawyer*, *elec'tronic engineer*, and *'nervous disorder*, do not allow their heads to be replaced by the pro-form *one*. Consequently, such strings can be treated as lexical combinations.

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[14] According to Sadler and Arnold (1994), all AN combinations are either strongly lexical (i.e., compound-like) constructions or weakly lexical constructions (i.e., phrasal N1-level units).

(41) a. *Do you mean the autumnal equinox or the vernal one?
b. *Is this the Home Office or the Foreign one?
c. *Is he a constitutional lawyer or a criminal one?
d. *Is he an electrical engineer or an electronic one?
e. *Is this a mental disorder or a nervous one?
(from Giegerich 2005: 580)

However, there occur other AN combinations, which allow *one*-replacement, in spite of showing the stress pattern characteristic of compounds (i.e., forestress), as in (42).

(42) a. Is this the medical building or the dental one?
b. Do you have a medical appointment or a dental one?
c. Is this the general hospital or the mental one?
d. Is this the Arts Faculty of the Medical one?
e. Is he a legal advisor or a financial one?

Giegerich (2005) concludes that some adjective-noun constructions originate in the syntax (e.g., *medical appointment*), while others originate in the lexicon (e.g., *mental disorder*). Consequently, the syntax and the lexicon overlap, and there is no sharp border between them.

A different conclusion is reached within the framework of Construction Morphology. Although Booij (2010) shares with Giegerich the view that there is a continuum between the syntax and the lexicon, he does not try to divide the RA+N strings between the two modules. Booij (2010: 179) analyses English adjective-noun combinations as lexical phrasal constructions, that is, as phrases which share the naming function with morphologically simplex and morphologically complex words. This refers both to RA+N combinations, such as *Arabian horse* or *electrical outlet*, and to strings containing nouns preceded by non-derived (or non-denominal) adjectives, for instance, *blue cheese* or *modern art*.

RA+N combinations in English are built by rules of syntax, yet they function as conceptual units and are likely to show semantic opacity (as was already observed earlier in this section). For instance, *natural gas* is not any gas found in the natural environment, but a mixture of gases (involving mostly methane gas) which are rich in hydrocarbons and can be used as a fuel. RA+N phrasal nouns exhibit internal cohesion; hence, the sequence *natural gas* cannot be interrupted by modifiers, as in **natural cheap gas* (vs. *cheap natural gas*). Constituents of phrasal nouns do not (normally) allow for paradigmatic substitution. Consequently, the RA+N unit *mental hospital* cannot be replaced by **psychic hospital* or **psychotic hospital* (although *psychiatric hospital* is another established variant).

Similarly, the phrasal noun *natural gas* is not synonymous with AN phrases such as *common gas* or *simple gas*.

There are AN constructions with non-relational (and non-derived) adjectives, for instance, *green woodpecker* and *Common Tern*, which function as names of species, show semantic opacity, exhibit (compound-like) forestress, and disallow independent modification of the modifying constituent (cf. **a grass green woodpecker*, **a Common juvenile Tern*). However, they allow *one*-replacement, as shown by the following example from Giegerich (2009: 198): *Grey-headed Woodpeckers are hard to distinguish from Green ones.*

A conclusion can be drawn that A+N phrasal nouns are in-between the syntax and the lexicon; therefore, they show a mixture of phrasal and word-like properties. As was demonstrated above, some of those AN combinations are more phrasal (e.g., by being semantically transparent, allowing *one*-replacement, and having right-dominant stress pattern), for instance, *solar 'battery*. Others are more compound-like (i.e., word-like) by exhibiting forestress and semantic opacity and by disallowing *one*-replacement, as in the case of *constitutional lawyer*. It comes as no surprise that there are also AN units which are at the same time word-like and phrase-like: they show the phrasal (right-dominant) stress pattern, yet are semantically opaque and disallow *one*-replacement, such as *natural gas* and *criminal lawyer*. Or, conversely, they have initial stress (*'medical building*, *'dental care*), yet are fairly transparent semantically and allow *one*-replacement.

The variable phonological and syntactic behaviour of AN phrasal lexemes confirms the observation made by Giegerich (2009: 200) that "[t]he phonological and syntactic lexicon-syntax divides are not congruent." This is also consonant with the remark made by Sadler and Arnold (1994: 212) that "grammatical theory should recognize a kind of construction which is neither fully syntactic nor fully lexical, but has properties of both."[15] Such constructions (e.g., A+N complexes) are termed here phrasal nouns.

In the next section, I will discuss another type of phrasal nouns in English, namely, those consisting of a descriptive genitive followed by the head noun.

2.5 Genitive compounds (*X's X* construction)

Shimamura (1998) mentions the occurrence of so-called genitive compounds in English (also called possessive compounds),[16] that is, *NP's NP*

[15] Liberman and Sproat (1992: 175) suggest that "it seems possible to accept the assumption that English N^0 compounds are word-level objects that are formed in the syntax."

[16] The term possessive compound is used in a different sense by Olsen (2001), to refer to exocentric AN compounds, such as *fathead* and *birdbrain*.

[Possessor's + Possessee construction], in which the prenominal *NP's* has a descriptive function. Many of those genitive compounds are idiomatic and non-compositional, for instance, *fool's paradise* 'a state of delusory happiness,' *bull's-eye* 'the centre of a target; very hard globular candy,' *cat's cradle* 'something that is intricate, complicated or elaborate,' *lion's share* 'the largest portion,' *death's-head* 'a human skull or a depiction of human skull symbolizing death,' *crow's nest* 'a partly enclosed platform high on a ship's mast for use as a lookout,' *baby's breath* 'any of a large genus (*Gypsophila*) of Old World herbs of the pink family having loosely branching clusters of numerous small, delicate, usually white or pink flowers' (see *Merriam-Webster Dictionary*).

Other genitive compounds are fairly transparent semantically, for instance, *woman's voice* 'voice typical of a woman,' *girls' school* 'a school for girls,' *bird's nest* 'a nest of a bird,' *cow's milk* 'milk from cows,' and *mother's love* 'love of a mother.' Huddleston and Pullum (2002: 467–470) refer to such instances of *X's* (in *X's X* construction) as attributive genitives, that is, Saxon genitives which function as attributive modifiers of head nouns. Attributive genitives are divided further into two types: descriptive genitives (e.g., *a women's college, a glorious summer's day*) and measure genitives (e.g., *an hour's delay*, *a second [one hour's delay]*).

Rosenbach (2007), following Huddleston and Pullum (2002), employs the term descriptive genitives with reference to *'s* genitives which have a classifying function, as in *a girls' school*, *mother's love*, *a summer's day*, *a men's suit*, and *a metal baby's high-chair*. She also notes the occurrence of measure genitives (as in *two hours' delay*, *a week's employment*, or *a dollar's worth of chocolates*). Another type of *'s* genitives, referred to as determiner genitives by Rosenbach (2007), represents phrasal (i.e., syntactic) constructions and can be illustrated by the phrases *Bush's administration*, *Major's plan*, *Kim's father*, and *your mother's second husband*. Huddleston and Pullum (2002: 467) use the term "subject-determiner genitives" with reference to the latter (i.e., phrasal) type of genitives (e.g., *Kim's father*). There is a difference between adjectival premodifiers in descriptive genitives (e.g. *a metal baby's high-chair*) and in determiner genitives (e.g., *young Mozart's compositions*). In the latter case, the adjective *young* premodifiers the Possessor (i.e., *Mozart*). In the former case, the adjective *metal* premodifiers the Possessee, that is, the head noun *high-chair*.

Descriptive genitives, such as *a girls' school*, *baby's high-chair*, *or bull's-eye*, will be treated here as phrasal lexemes. Although they contain lexeme-internal inflectional markers (i.e., *'s* genitive marker), they exhibit lexical integrity. They cannot be interrupted by modifiers, for example, **girls' famous school* or **bull's red eye*. Their constituents do not allow

paradigmatic substitution; hence, the phrasal noun *children's home* cannot be replaced by **children's building* or **kids' home*.

The example from Rosenbach (2007) given above – *a metal baby's high-chair* – as well as the phrases *best girls' schools* and *the first women's colleges* show that the descriptive genitive does not have its own premodifier. This is contrasted with determiner genitives, in which the *'s* marker can be attached to a syntactically heavy noun phrase (containing premodifiers and postmodifiers), as in *the young woman's mother, the people who live across the road's new car,* or *the girl with the snake skin's name* (see Taylor 1996; Babyonyshev 1997; Cetnarowska 2005).

The Possessor in the phrasal determiner genitive is referential; hence, the noun *girl* can be coindexed with the pronoun *her* in (43a), while the noun *president*, with the pronoun *him* in (43b).

(43) a. I knew the *girl$_i$'s* father so I was happy to help *her$_i$*.
b. The *president$_j$'s* assassination shocked all the politicians who knew *him$_j$* personally.

In contrast, the Possessor in a descriptive genitive, for instance, *women* in (44a), cannot be coreferential with the pronoun *them*, while *summer* in (44b) cannot be coindexed with the pronoun *it*.

(44) a. We enrolled our daughter into a respectable *women$_i$'s* college, although we didn't know *them$_{*i}$* well.
b. This hot *summer$_j$*'s day was not appropriate for *it$_{*j}$*.

Descriptive genitives (such as *women's*, *men's*, *girls'*) fairly commonly occur as modifiers in right-branching compounds, as shown in (45).

(45) a. women's [pencil skirts]
b. women's [fishing shirts]
c. women's [performance fishing shirts]
d. women's swimwear
e. men's [swim trunks]
f. men's [sports jackets]
g. girls' [school shoes]
h. boys' [school uniform]
i. children's [book club]

This phenomenon is worth noting since right-branching compounds are less common than left-branching ones in English (see Marchand 1969; Warren 1978; Kösling and Plag 2009; Mukai 2018). The usage of the Sax-

on genitive (with the descriptive function) can be viewed as an indicator of the right-branching structure in the above-mentioned compounds; hence, *children's book club* will be interpreted as 'book club for children,' rather than 'club for people reading children's books.'[17] The replacement of *women's* by *woman* in (45a–c) would result in a potential ambiguity and lack of transparency of their internal structure. A speaker of English might wonder if the NNNN combination *woman performance fishing shirt* should be parsed as [*woman performance*] [*fishing shirt*] (denoting a fishing shirt which has something in common with a female performance artist) or as [*woman* [*performance* [*fishing shirt*]]].

With reference to right-branching [N [NN]] structures, Selkirk (1984: 250) suggests that the single N constituent bears an adjunct relation to the complex head (and this usually triggers right-hand stress), as in [*Yale* [*law school*]] 'a law school located in Yale' and [*brick* [*townhouses*]] 'townhouses made of brick' (see Kösling and Plag 2009 for more discussion). The adjunct relation, that is, the modifier-head relation, obtains also between the descriptive genitive and the complex NN head in genitive compounds in (45). They would be treated by Levi (1978) as containing the recoverably deletable predicate FOR, as in [*women's* [*pencil skirts*]] 'pencil skirts for women' and [*boys'* [*school uniforms*]] 'school uniforms for boys.'

Apart from exhibiting semantic opacity, selected genitive compounds resemble NN (or AN) compounds in their orthographic shape: notice that *bull's-eye* and *death's-head* are hyphenated (*Merriam-Webster Dictionary*). The expression *dog's body* 'a drudge; a person who does menial work' (mentioned by Liberman and Sproat 1992) is written as a single orthographic word *dogsbody* in many dictionaries (e.g., in *Merriam-Webster Dictionary* and *Collins English Dictionary*). The genitive compound *bull's-eye* (found in this form in *Collins English Dictionary*) is spelled as *bullseye* in *Oxford English Dictionary* (*Oxford Living Dictionaries*).

Bauer (2017: 140) gives the following examples of compound nouns written as one orthographic word and containing *-s* which seems to function either as a genitive marker or a plural marker (listed in 46).[18]

(46) a. *beeswax* 'the wax secreted by bees to make honeycombs'
b. *hogshead* 'a measure of capacity for wine (238.7 litres) and for beer (245.5 litres)'
c. *houndstooth* 'a large check pattern with notched corners suggestive of a canine tooth, typically used in cloth for jackets and suits'

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[17] It needs to be added that a descriptive genitive can become a constituent of left-branching compounds as well, as in [*girls' schools*] *association*.

[18] Definitions of the lexemes in (46) are taken from *Oxford Living Dictionaries*.

d. *lambswool* 'fine, soft wool from lambs, used to make knitted garments, blankets, etc.'
e. *menswear* 'clothes for men'
f. *ratsbane* (arch.) 'rat poison'
g. *sportswear* 'clothes worn for sport or for casual outdoor use'

Bauer (2017) considers the possibility of treating *-s* in such words as a linking element, similar in function to *-s* attested in compounds in other Germanic languages, such as in German *Liebesbrief* 'love letter,' Swedish *fotbollsplan* 'football pitch,' and Danish *rødvinsglas* 'red-wine glass.' He points out that the presence of the genitive *-s* or the linking *-s-* in English lexemes is largely unpredictable. This is demonstrated by the comparison of English compounds with and without *-s*, for instance, *harebell* vs. *hare's-tail*, *house maid* vs. *lady's maid*, *land girl* vs. *landsman*, and *town house* vs. *townspeople* (Bauer 2017: 143).

Phrasal lexemes which represent the *X's X* construction show a mixture of phrasal and compound-like properties. The expressions *death's-head*, *Swainson's thrush*, or *Lincoln's sparrow* are semantically opaque or partly compositional, yet they show right-dominant stress, according to Liberman and Sproat (1992: 154). This type of stress pattern is obligatory in syntactic phrases containing determiner genitives, such as *Mary's house* or *the bull's eye* 'the eye of the bull.' Ruszkiewicz (1997: 146–147) provides further examples of what he calls "lexical genitive constituents," which exhibit non-compositional meanings and contain a proper noun as their left-hand constituent, for example, *Johne's disease*, *Johnston's organ*, and *Jehovah's Witnesses*.[19] Such genitive compounds are semantically non-compositional. *Johne's disease* does not refer to a disease that Johne is affected by, but to a cattle disease which was described by the German bacteriologist Heinrich A. Johne.

Moreover, as observed by Fudge (1984: 146), Liberman and Sproat (1992: 166), and Bauer (2017: 142), there occur *N's N* units (containing descriptive genitives) which are non-compositional and have initial stress, such as *dog's body*, *bull's eye*, *crow's nest*, *doll's house*, *snail's pace*, *cat's eye*, *snake's head*, *rat's tail*, and *lady's maid*.

When discussing multi-word units in English, Hüning and Schlücker (2015) and Bauer (2019) list various types of phraseological units. Apart from complex nominals (including AN combinations), they mention N-Conj-N

[19] While Ruszkiewicz (1997: 146–147) mentions *Jehovah's Witnesses* and *Johne's disease* as *N's N* combinations with the left-dominant stress pattern, some online dictionaries (such as *Collins English Dictionary* or *Cambridge Dictionary*) provide the right-dominant stress pattern for them. Nevertheless, the same dictionaries mention the left-dominant pattern for such *N's N* combinations as *Crohn's disease* and *Berger's disease*.

units (*fish and chips*, *life or death*), binomial N-Prep-N expressions, for instance, *shoulder to shoulder* or *toe to toe*, and other phrasal N-PP combinations which can be regarded as established lexical units, for example, *trial by jury*, *lady-in-waiting*, *man-at-arms*.[20] Such multi-word units will not be discussed here (apart from AN or *N's N* phrasal lexemes), since they do not compete on a regular basis with morphological compounds in English.

In the next section I will consider cases where English NN compounds coexist with RA+N complex nominals or with "genitive compounds" based on the same stems, for instance, *atom bomb – atomic bomb* and *dollhouse – doll's house*.

2.6 Competition between NN compounds and phrasal nouns in English

As was mentioned in the preceding sections, one can come across doublets, that is, pairs of NN compounds and RA+N phrasal nouns with the same interpretation.

The examples in (47), taken from Levi (1978) and quoted by Bauer and Tarasova (2013: 6), suggest that the range of meanings postulated for English NN compounds can also be identified with AN phrasal lexemes; hence, the same set of Levi's recoverably deletable predicates (RDPs) can account for the semantic interpretation of both NN and RA+N units.[21]

(47)	N1 CAUSE N2	viral infection
	N2 CAUSE N1	malarial mosquitoes
	N1 HAVE N2	feminine intuition
	N2 HAVE N1	industrial area
	N1 MAKE N2	molecular chain
	N2 MAKE N1	musical clock
	N2 USE N1	manual labour
	N2 BE N1	professorial friends
	N2 IN N1	autumnal rains
	N2 FOR N1	avian sanctuary
	N2 FROM N1	solar energy
	N2 ABOUT N1	criminal policy

[20] Other types of multi-word expressions in English also fall outside the scope of this monograph, for instance, routine formulas (*Good morning*), proverbs (*A bird in the hand is worth two in the bush*), quotations (*Shaken, not stirred*), and commonplaces (*One never knows*).

[21] In some of those examples, the adjective seems to be a qualitative and not a relational/associative one, for instance, *feminine intuition* 'intuition characteristic of women.'

Some of the competing NN and AN combinations are listed in Table 4 (the data taken from Cetnarowska 2012).[22]

Table 4. Competition between English NN compounds and AN complex nominals

	A+N complex	Occurrences in COCA	Google hits	NN compound	Occurrences in COCA	Google hits
1.	atomic bomb	827	3,610,000	atom bomb	220	2,680,000
2.	Biblical society	4	233,000	Bible society	32	3,860,000
3.	departmental committee	5	227,000	department committee	6	6,220,000
4.	financial department	8	25,100,000	finance department	70	26,100,000
5.	governmental client	0	5,430,000	government client	8	5,540,000
6.	governmental institution	6	611,000	government institution	29	5,130,000
7.	grammatical rules	27	124,000	grammar rules	17	3,810,000
8.	legal committee	10	5,890,000	law committee	22	6,850,000
9.	morphological conference	0	130,000	morphology conference	0	195,000
10.	parental consent	332	453,000	parent consent	23	866,000
11.	phonetic laboratory	0	38,800	phonetics laboratory	0	88,000
12.	phonological meeting	0	33,700	phonology meeting	0	26,800
13.	racial problem	19	3,900	race problem	62	19,500
14.	semantic research	0	3,690,000	semantics research	0	3,240,000
15.	syntactic seminar	0	16,900	syntax seminar	0	76,000
16.	sexual maniac	1	126,000	sex maniac	15	126,000

The relative density of some of the NN and AN combinations given above is further evaluated by Google ngrams (http://books.google.com/ngrams/), which are included in the Appendix.

[22] Cetnarowska (2012) compared data from the COCA corpus, collected in January 2011, with the number of search results (for NN and AN complexes) returned by Google on 24th and 25th October 2010. The referee observed that it would be interesting to see how often these AN and NN combinations occur nowadays in COCA and on various websites. Unfortunately, this task cannot be carried out since the Googlefight engine, which was employed to trace the competition between AN and NN units on the Web, is no longer active. Google ngrams, which can be used instead of Googlefight to study the competition between AN and NN units, show which pattern is dominant but do not provide easy-to-extract numerical data.

In (48–53), illustrative examples (culled from COCA) are provided for selected synonymous NN and AN combinations from Table 4.[23]

(48) a. There were the *atomic bomb* spies, the Rosenbergs and others.
b. We put you on the ground when that *atom bombs* drops.

(49) a. As represented by the *Biblical Society* of Puerto Rico, members of these congregations organized the impressive demonstration held on Feb. 21.
b. a recent survey conducted by the American *Bible Society* and Compass-Finances God's Way.

(50) a. I laughed loudly and told them not to bother the *departmental committee*.
b. A State *Department committee* will determine the size of rewards.

(51) a. I think that's a testament to our administration and *financial department*.
b. Applications must be received by noon Feb. 6 at the *Finance Department*.

(52) a. Obviously this portrait describes neither a regularly functioning *governmental institution* nor regular government.
b. That's what makes it distinct from a *government institution*, which has to abide by public law.

(53) a. Students are expected to parse these for themselves, as a kind of perennial homework, after they have memorized *grammatical rules* and vocabulary lists.
b. Most of these kids did start using IM when they were between the ages of eight and 10, so they learned it when they were learning the other *grammar rules*.

There seems to be no clear pattern explaining the preference for AN or NN variants mentioned in Table 4. Lexicographic evidence and careful analysis of the textual occurrence of the multi-word units in question would be required to reach firm conclusions concerning the rivalry between synonymous AN and NN units. We are in the position to formulate only preliminary remarks, having inspected Google ngrams (http://books.google.com/ngrams/). For some pairs listed in Table 4, one of the variants is attested very rarely. This is the case of *parent consent*, *department committee*, *Biblical society*, and *financial department*, which occur less frequently than

[23] In the case of the pair *governmental client – government client*, no examples of the AN complex nominal can be found in COCA. The following example from COCA illustrates the usage of the NN compound: "We need to focus our higher expectations on the government client, and let government lawyers find common ground with their private sector brothers and sisters."

their equivalents *parental consent*, *deparmental committee*, *Bible society*, and *finance department*. Differences between regional varieties of English may be responsible for the preference for the AN variant over the NN variant (or vice versa). According to Google ngrams, speakers of BrE currently (i.e., at the beginning of the 21st century) show a strong preference for the AN combination *grammatical rule*, while AmE speakers employ *grammar rule* and *grammatical rule* equally (or nearly equally) frequently. The popularity of a given expression changes over time. For instance, there was a sudden increase in the frequency of the NN unit *grammar rule* in British English in 1991–1992, and during that period, this NN combination was more common in British English texts than the AN combination *grammatical rule*.

Upon closer examination of sentences from COCA, some interesting observations can be made. The NN string *department committee*, rather than the AN combination *departmental committee*, occurs when *department* is a part of the complex modifier (as in 50b and 54, culled from COCA). Let us observe that the usage of the relational adjective *departmental* would then be infelicitous, for instance, **Justice Departmental committee*.[24]

(54) a. [Interior Department] committee
b. [State Department] committee
c. [Justice Department] committee
d. [War Department] committee

When comparing NN and AN units, Warren (1984: 144) suggests that concrete nominal heads prefer nominal modifiers while abstract heads prefer adjectival modifiers. Rainer (2013) disagrees with Warren's conclusion and provides the example of *toothache*, where the abstract noun *ache* is modified by the noun *tooth*. Rainer's position is supported also by the data from Table 4 (and from Google ngrams), which indicate that the abstract noun *rules* can be premodified either by the adjective *grammatical* or the noun *grammar*.

Rainer (2013: 28) points to the importance of stylistic factors in the competition between NN and RA+N units. He notices that RAs (including collateral adjectives, such as *dental*) are typical of more technical and scientific texts (where we can find specialised terms, such as *dental abscess*, *dental floss*, or *dental irrigation*). The following pairs (in 55) illustrate the stylistic difference between more formal AN complexes (containing collateral adjectives) and less formal NN combinations.

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[24] The replacement of *Interior Department committee* by ?*Interior Departmental committee* might imply that the two adjectives exemplify parallel modification, denoting a committee which is both interior and departmental.

(55) a. solar energy – sun energy
b. fungal cultivation – mushroom cultivation
c. bovine diseases – cattle diseases
d. feline care – cat care
e. canine teeth – dog teeth

However, register differences are not the main factor influencing the choice of NN over AN combinations (or vice versa). Google searches bring examples of texts in which the author uses a synonymous AN and NN combination interchangeably, presumably to avoid the monotonous repetition of the same structure (see Cetnarowska 2012).

(56) Identifying Government Client. Precisely defining the identity of a governmental client can be difficult.
(from: Annotated model rules for professional conduct, American Bar Association 2007: 207. books.google.pl/books?isbn=1590318900; accessed 6 January 2011)

(57) Parent consent. (a) Written parental consent must be obtained before (1) Conducting the initial evaluation and assessment of a child
(from: http://cfr.vlex.com/vid/303-parent-consent-19760380#ixzz1ALzsOE7m; accessed 6 January 2011)

Some scholars (e.g., Kayne 1984; Mezhevich 2002) suggest that in predicate-argument constructions, relational adjectives (cross-linguistically) do not allow for object reading, hence the unacceptability of **the Chinese invasion by Russia*, or the ill-formedness of the Russian phrasal noun **furgonnyj voditel'* (van.RA driver), which is replaced by the genitive construction, that is, *voditel' furgona* (driver van.GEN) 'van driver.' Rainer (2013) disagrees with such a view and provides well-formed examples of nominals containing relational adjectives with object reading, such as *the Polish invasion by Germany* and *the Russian invasion by Napoleon*. Giegerich (2005: 577) expresses a similar opinion. He asserts that speakers can associate RAs either with the subject reading (*papal visit*, *presidential lie*) or the object reading (*papal murder*, *professorial appointment*) depending on the extralinguistic (i.e., encyclopedic) knowledge.

This is confirmed by the phrases in (58), where the RAs *fungal* and *presidential* are given either the subject reading or the object reading, depending on the semantics of the head noun (which is a deverbal derivative).

(58) a. fungal invasion (cf. The fungi invaded something.)
b. fungal deterioration of historical textiles (cf. The fungi deteriorated historical textiles.)
c. massive fungal destruction of the lips (cf. The fungi destroyed the lips.)
d. fungal removal experiment (cf. The experiment concerns the removal of fungi.)
e. fungal supply to grazers (cf. Somebody supplies fungi to grazers.)
f. presidential arrival in Philadelphia (cf. President arrived in Philadelphia.)
g. presidential assassination attempts (cf. Someone attempted to assassinate the president.)

AN strings may have a markedly different interpretation from corresponding NN compounds when the adjective has a qualitative reading; hence, the whole AN combination is a regular syntactic phrase, and not a RA+N phrasal lexeme (containing a relational adjective). Illustrative examples are provided in (59) (see also Warren 1984; Bauer et al. 2013: 626).

(59) a. pepper sauce — a.′ peppery sauce
b. history book — b.′ historic book
c. hair brush — c.′ hairy brush
d. silver paper — d.′ silvery paper
e. gold ring — e.′ golden ring
f. brute force — f.′ brutal force

The compound *pepper sauce* denotes a type of brown sauce with sauteed vegetables and with plenty of pepper (as defined by the *Free Dictionary* online). A *peppery sauce* is any type of sauce which is hot. The phrase *historic book* refers to an important and influential book, while the compound *history book* denotes a book whose topic is history. A *hair brush* is a brush used in hair care. A *hairy brush* may refer to a virtual paint brush which leaves the image of a brush stroke. The AN phrase *brutal force* has a compositional meaning, namely, 'force which is brutal.' The NN combination *brute-force*, used as a prenominal modifier in such expressions as *brute-force attack* or *brute-force programming*, denotes a method of achieving the goal through the application of force or power, without using strategic planning.

In the case of some NN and AN pairs, such as *country house – rural house*, the adjective can be treated as a relational one (with a classifying force) in both combinations, yet the interpretation of the NN compound is different from the meaning of the AN phrasal lexeme. A *rural house* is one that is found in the countryside, while a *country house* is a large mansion in the country, often belonging to a wealthy family.

Let us now look at the competition between NN compounds, genitive compounds (i.e., *X's X* construction), and AN complexes. Shimamura (1998) shows that many English genitive compounds cannot be replaced

by combinations of denominal adjectives and head nouns, since such AN phrases would call for a different interpretation. We could add that the denominal adjective in the (semantically anomalous) phrases in (60) is not associative (i.e., relational), but qualitative, for instance, *childish* 'typical of a child,' *womanly* 'having the qualities associated with women, appropriate for women,' *boyish* 'characteristic of or befitting a young male,' and *manly* 'denoting qualities usually associated with men, such as determination, courage, decisiveness, bravery, or strength.'

(60) a. a children's room
b. a woman's magazine
c. boys' shoes
d. men's room

a.′ *a childish room
b.′ *a womanly magazine
c.′ *boyish shoes
d.′ *manly room

Some genitive compounds are synonymous with NN compounds; for instance, both *doll's house* and *doll-house* can be provided with the same definition, that is, 'a toy house in which dolls and miniature furniture can be put; a very small house' (*Collins English Dictionary*). The genitive compounds *summer's day* and *winter's day* can be replaced by the NN compounds *summer day* and *winter day*. Further examples of synonymy between genitive compounds and NN compounds are given in (61) (see Bauer 2017, 2019).

(61) a. *dog-ear* or *dog's-ear* 'a turned-down corner of the leaf of a book' (*Collins*)
b. *frog-mouth* or *frog's mouth* 'a nocturnal insectivorous bird' (*Collins*)
c. *frogbit* or *frog's-bit* 'a European floating plant' (*The Free Dictionary*)

The choice between NN and *N's N* may depend on the language variety of the speaker. For instance, the *Collins English Dictionary* indicates that *doll's house* is the form used chiefly in British English but makes no mention of the variants *dog's ear* and *frog's mouth*. Google ngrams (http://books.google.com/ngrams/) which test the relative density of the forms *doll's house* and *dollhouse* show the prevalence of the compound *dollhouse* in texts exemplifying various regional varieties of English (from the 1970s onwards). They confirm, however, the preference for the genitive compound *doll's house* in British English.

The usage and interpretation of particular genitive compounds depends also on the speaker's idiolect and sociolect. The *Free Dictionary* regards *dog-ear* and *dog's-ear* as synonyms (which denote a turned-down corner of the leaf in a book), but it mentions the *N's N* combination *dog's ear* (without the linking hyphen) as an architectural term,[25] which is

[25] These examples are discussed by Laurie Bauer in a prepublication version of his (2019) chapter.

synonymous with (and usually replaced by) the lexeme *crossette*): 'a decorative embellishment, such as a molding around one corner of a door, window or fireplace opening, that somewhat resembles a squared-off ear, especially popular during the latter half of the 18th century.'

Bauer (2019) provides examples of some pairs of NN compounds and *N's N* multi-word units which are associated with distinct meanings (62).

(62) a. *duck-foot* (adj) 'having webbed feet'
a.′ *duck's foot* (also spelled *duck's-foot*) 'a type of a plant, also called the May apple'[26]
b. *dog-tooth* 'check pattern'
b.′ *dog's tooth* 'an architectural pattern'
c. *dog collar* 'a clerical collar'
c.′ *dog's collar* 'a collar for a dog'

There is again a room for interspeaker variation here. The check pattern (i.e., *dog-tooth* in 62b above) can also be referred to as *houndstooth*, *dog's-tooth check*, or *hound's-tooth check* (thus, the *X's X* construction can be used here). According to the *Free Dictionary* (online), a collar for a dog can be called a dogcollar. The *Collins English Dictionary* (online) mentions, among the meanings of the compound *dog-tooth*, the specialised (architectural) reading 'a carved ornament in the form of four leaf-like projections radiating from a raised centre, used in England in the 13th century,' while Bauer (2019) employs the expression *dog's tooth* in this sense (62b above).

Incidentally, the expressions *dog-tooth* and *dog's tooth* compete with RA+N phrasal lexeme, that is, *canine tooth*, which denotes one of four relatively long and pointed conical teeth in a mammal's mouth (*Free Dictionary*).

Bauer and Tarasova (2013) argue that a set of recoverably deletable predicates, postulated for the interpretation of NN compounds and AN complexes, can be used to identify the meanings of the possessive construction in English.[27] They use the term possessive construction in a wider sense than genitive compounds (as employed by Shimamura 1998), since they discuss both Saxon genitives (i.e., prenominal *'s* genitives) and postnominal *of*-genitives. Bauer and Tarasova (2013) provide the examples quoted in (63) in order to prove that possessive constructions of both

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[26] According to the Internet sources, *duck's foot* can also refer to a gun with several barrels for firing a number of shots, which are arranged in a duck-foot pattern.

[27] Interestingly, Bauer and Tarasova also show that such recoverably deletable predicates can be employed to determine the meanings of neoclassical compounds, such as *necrophobi*a, and of blends, for instance, *palimony* (from *pal alimony*) and *Chicagorilla* (from *Chicago gorilla*).

types exhibit a similar range of meanings to those associated with NN compounds.

(63) Bauer and Tarasova (2013: 7)

RDP	prenominal *'s* construction	*of*-construction
N1 CAUSE N2	nature's bounty	smell of bourbon
N2 CAUSE N1	Israel's creation	creation of Israel
N1 HAVE N2	dog's breakfast	cost of the flight
N2 HAVE N1	ladies' man	owner of the café
N1 MAKE N2	Kellogg's cornflakes	Odyssey of Homer
N2 MAKE N1	letter's author	writer of thrillers
N2 USE N1	car's driver	driver of the car
N2 BE N1	Dublin's fair city	sign of the cross
N2 IN N1	Thursday's lunch	people of the forest
N2 FOR N1	wolf's bane	day of rest
N2 FROM N1	New Zealand's wines	heat of the sun
N2 ABOUT N1	university's status	Book of British Birds

Some of the possessive constructions regarded by Bauer and Tarasova (2013) as illustrating Levi's recoverably deletable predicates (RDPs) are controversial. The expressions *Israel's creation* and *creation of Israel* involve the Argument Schema (in the sense of Jackendoff 2009, 2010, 2016), and not the Modifier Schema. Instead of N2 CAUSE N1 RDP, one could suggest the Object-Type reading for the Saxon genitive *Israel's* or the post-head gentive *of Israel*. The strings *letter's author*, *car's driver*, and *university's status* look more phrasal than compound-like, since the Saxon genitives *letter's*, *car's*, and *university's* in *(the) letter's author*, *car's driver*, and *university's status* appear to be determiner genitives (and not descriptive genitives).

I have decided not to discuss English *N of N* combinations in this monograph because most of them exhibit the properties ascribed to phrasal constructions.[28] Their constituents are available as antecedents for anaphoric elements (such as pronouns or relative pronouns) and allow individual modifiers (e.g., *first* in 64c). Let us also recall that determiners (such as articles or demonstratives) and individual modifiers are impossible "inside" genitive compounds[29] (cf. **girls' the school*, **a summer's pleas-*

[28] This does not mean that there are no *N of N* multi-word units which denote kinds of entities. Some of them are idiomatic expressions (e.g., *man of war*, *bird of prey*), others are fixed terms which are compositional (e.g., *balance of payments*). Such *N of N* units can occasionally appear as modifiers in compound nouns, as in [[*balance of payments*] *problems*] (see Liberman and Sproat 1992: 180).

[29] Determiners are also impossible "inside" phrases with Saxon genitives functioning as determiner genitives (e.g,. **Obama's the administration*).

ant day). Grammatical elements (e.g., articles and demonstratives) can be found "inside" phrases containing *of*-genitives. This is shown in (64) for one of Bauer and Tarasova's examples, that is, *driver of the car*. The noun *car* is coreferential with the pronoun *it* in (64a). In (64b), the relative pronoun *which* is coindexed with *car*.

(64) a. The driver of the car_i lost control over it_i.
b. She was the driver of the car_i $which_i$ ran into the lamppost in front of the police station.
c. The driver of the first car was drunk.

Bauer and Tarasova (2013) conclude that the same set of meanings can be expressed by NN compounds and by possessive constructions. An objection that can be voiced against such a conclusion is that it neglects the differences between the semantics of Saxon genitives and postnominal *of*-genitives (see Taylor 1996; Rosenbach 2002; Cetnarowska 2005). For instance, in the case of deverbal nominals derived from transitive verbs, such as *creation*, the *of*-genitive typically indicates the object of the action (i.e., the Theme/Patient), while the Saxon genitive typically expresses the subject of the action (i.e., the Agent). There are also factors which determine the choice of the prenominal *'s* construction instead of the postnominal *of*-construction, and they are linked to the characteristics of the Possessor. The animacy of the Possessor and its topicworthiness favour the usage of the *'s* genitive over the *of*-genitive.

Futhermore, Bauer and Tarasova (2013) do not take into account the preference (shown by speakers of English) to link a particular semantic relationship with genitive compounds rather than with noun-noun compounds (or vice versa). This is the topic of the work by Rosenbach (2007), who studies the variation between noun modifiers and genitive modifiers in English, for instance, the variation between *the lawyer's fees* and *lawyer fees*. Rosenbach (2007) notes that when the dependent (i.e., the Possessor) is animate, there is a general preference for the genitive (*N's N*) construction rather than the NN compound, as in *the lawyer's fees*. However, in the case of inanimate Possessors (such as *museum*), speakers prefer to use the NN compound, as in *museum shop*, instead of *museum's shop*.

Slightly different conclusions follow from Rosenbach's study of proper names in the ARCHER (BrE) science corpus. She notes the special usage of names of people as prenominal modifiers, as in (65).[30]

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[30] For some of such combinations with the premodifying proper noun, there is a synonymous *N's N* construction, for instance, *the Planck constant* and *Planck's constant* or *the Bernoulli equation* and *Bernoulli's equation* (cf. Ruszkiewicz 1997: 148).

(65) a. the Bernoulli relationship
b. the Planck constant
c. an automatic Sprengel pump
d. a McLeod gauge
e. the appropriate Reynolds number

It can be pointed out that the prenominal noun modifiers in (65) are not determiner modifiers. *Sprengel* in *a Sprengel pump* or *Planck* in *the Planck constant* are descriptive (i.e., classifying) premodifiers. This is indicated by the fact that the adjective *automatic* in *an automatic Sprengel pump* modifies the head noun *pump*, and not the determiner noun *Sprengel*. Similarly, *appropriate* in (65c) refers to the head noun *number*, and not to the proper noun *Reynolds*. The proper nouns used as classifying premodifiers are not referential. In the sentence in (66a), *his* is coreferential with *Jack* and not with *Sprengel*. The pronoun *he* in (66b) is coreferential with *John* and not with *Planck*.

(66) a. Jack showed me an automatic *Sprengel* pump. I didn't like *his* pump.
b. John couldn't understand the *Planck* constant although *he* is very intelligent (in my opinion).

However, there are instances where there exists a synonymy between the genitive compound and the construction with a proper noun as a prenominal noun modifier, for instance, *the Obama presidency* and *Obama's presidency*.[31] This is shown in (67–71) in examples culled from COCA.

(67) a. History will be the ultimate judge of the Obama presidency.
b. Bill, we lost during Obama's presidency in Chicago 4,000 human lives and many thousands of others injured.

(68) a. One enduring takeaway from the Obama presidential years is this.
b. Mr Obama's years in Hawaii raised by a single mother along with his grandfather and grandmother

(69) a. In the wake of the Trump victory
b. A clearly pleased Netanyahu spoke the day after Trump's victory.

(70) a. In mid-August, Bannon became chief executive of the Trump campaign.
b. Brad Parscale, who served as Trump's campaign's digital director.

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[31] NN combinations in which the first constituent is a proper name show the right-dominant stress pattern (i.e., phrasal stress), as in *the Bush admini'stration*. The same stress pattern occurs when the left-hand (modifier) constituent is a temporal noun or a geographical name, as in *morning 'paper* and *Boston 'marathon*.

(71) a. And Jeffrey Smith, he served as general counsel of the CIA in the Clinton administration.
b. Bella was on the official delegation, since it was during Clinton's administration

Rosenbach (2007: 186) suggests that there is a change visible in the syntax of the English noun phrase. Noun modifiers (as in *the Clinton administration*) climb up the animacy scale, while *'s* genitives descend down the animacy scale (to allow for *the chair's leg*). This is confirmed by the examples given above (in 67–71).

2.7 Summary

Chapter 2 has demonstrated how difficult it is to identify (or rather, to agree on) diagnostic tests which should be crucial in separating English compound nouns from canonical noun phrases. This results in a variety of opinions concerning the range of compounding in English. Some scholars (e.g., Jespersen 1942; Biber et al. 1999) perceive morphological compounds as a relatively small group of complex lexemes which are semantically opaque and/or written as one orthographic word. Others (e.g., Bell 2012; Bauer 1983, 2017) recognise compounding in English (especially endocentric compounding) as a very productive and recursive process. I adopt here the latter view and regard numerous NN combinations in English as compound nouns (no matter what their stress pattern is). It is not easy to prove their lexical integrity, as they can be coordinated and frequently allow paradigmatic substitution (as in *sportswear – swimwear – maternity wear*), yet these are consequences of the high productivity of the endocentric NN compounding process in English. Apart from morphological compounds, there occur phrasal nouns, that is, phrases which are built according to rules of syntax but which show word-like properties (such as semantic opacity, lexical integrity, and syntactic restrictedness). Difficulties arise when we attempt to draw a boundary between AN compounds and AN phrasal nouns in a non-arbitrary way, and to determine whether *right hand* is a compound noun (as assumed by Bell 2012) or a free syntactic combination. The discussion of the syntactic behaviour of NN compounds and RA+N phrasal nouns has shown that multi-word units which belong to both these groups show varying degrees of phrase-hood and a startling mixture of word-like and phrase-like properties. Some NN compound nouns and RA+N units allow their heads to be replaced by the pro-form *one* (e.g., *washing machine, medical appointment*) or their modifiers to be available for outbound anaphora (e.g., *cat-lover*,

bicycle theft). Phrasal RA+N patterns and patterns for coining endocentric compounds interact (or "intermingle"); hence, RA+A units can become complex modifiers or complex heads in endocentric compounds. RA+N phrasal nouns coexist with synonymous NN compounds and the choice between them is frequently unpredictable (as it may be a matter of regional variation or of speakers' idiolects). Genitive compounds, that is, phrasal nouns which consist of a descriptive genitive followed by a head noun, represent either idiomatic expressions (e.g., *dog's tooth, bull's eye*) or semantically compositional ones (e.g., *summer's day, men's jackets*). Examples can be found (of both compositional and non-compositional) *N's N* units competing with synonymous NN compounds (cf. *summer's day* and *summer day*, or *dog-tooth* and *dog's tooth*). The difference between NN compounds and genitive compounds becomes obliterated since *N's N* combinations are hyphenated (*bull's-eye, hound's-tooth check*) or written as a single orthographic word (*lambswool, hogshead*). Genitive compounds may become a part of NN compounds, as in [*girls' schools*] *association*. When they serve as modifiers of right-branching compounds, as in *women's* [*performance fishing shirts*], the use of *N's N* construction makes the structure of the resulting multi-word unit more transparent.

Polish compounds and compound-like multi-word units

Composite units in Polish are traditionally divided into three types (see, for instance, Szober 1923; Handke 1976; Kurzowa 1976; Grzegorczykowa 1982; Grzegorczykowa and Puzynina 1984, 1998; Nagórko 1998, 2016; Szymanek 2009, 2010): compounds proper (Polish *złożenia właściwe*), solid compounds (Polish *zrosty*), and juxtapositions (Polish *zestawienia*). Section 3.1 will be devoted to the first two types, whereas the third type (i.e., juxtapositions) will be discussed in Section 3.2.

3.1 Morphological compounds in Polish (compounds proper and solid compounds)

Polish compounds proper, as exemplified in (1), meet the criteria of morphological compounds (as discussed by Lieber and Štekauer 2009, Booij 2010, and Ralli 2013, among others). They are written as single orthographic words, as shown in (1a, 1b). Coordinate compound adjectives (i.e., compound adjectives whose constituents are equal semantically) can be hyphenated, as in (1c).

(1) a. *żywopłot*
żyw-o-płot
live+LV+fence [NOM.SG]
'hedge'

b. *łamigłówka*
łam-i-głów-k-a
break+LV+head+DIM+NOM.SG
'puzzle, brain teaser'

c. *jesienno-zimowy*
jesien-n-o-zim-ow-y
autumn+ADJZ+LV+winter+ADJZ+NOM.SG
'relating to autumn and winter'

Further examples of coordinate compound adjectives include, among others, *biało-czerwony* 'red and white,' *północno-zachodni* 'north-west,' and *przyrodniczo-humanistyczny* 'relating to natural sciences and humanities' (as in *Uniwersytet Przyrodniczo-Humanistyczny w Siedlcach* 'Siedlce University of Natural Sciences and Humanities').

Compounds proper constitute single prosodic words. The main stress falls on the penultimate syllable, as in the case of non-derived words or suffixal derivatives (Rubach and Booij 1985). Consequently, the main lexical stress in the compound noun *gwiazdozbiór* 'constellation' in (2a) is placed on the syllable *do-*; likewise, the main stress falls on the syllable *wo-* in *biało-czerwony* 'red and white' in (2b), and on the syllable *stron-* in *dwustronny* 'bilateral' in (2d). There may be an additional secondary stress falling closer to the beginning of the word, for instance, on the syllable *bia-* in (2b). In the case of long compound words, such as *filologiczno-historyczny* 'relating to philology and history; philological and historical' in (2c), apart from the main stress falling on the penultimate syllable, that is, *rycz-*, there will be additional (secondary and tertiary) stresses on the syllables *fi-*, *gicz-*, and *hi-* (so such non-primary stresses are placed at the beginning of each constituent, and on the penultimate syllable of the first constituent). Stressed vowels are capitalised in (2).

(2) a. *gwiazdOzbiór*
gwiazd-o-zbiór
star+LV+set [M.NOM.SG]
'constellation'

b. *biAło-czerwOny*
biał-o-czerwon-y
white+LV+red+M.NOM.SG
'red and white'

c. *fIlologIczno-hIstorYczny*
filolog-iczn-o-histor-yczn-y
philology+ADJZ+LV+history+ADJZ+NOM.SG
'relating to philology and history'

d. *dwustrOnny*
dw-u-stron-n-y
two+LV+side+ADJZ+NOM.SG
'bilateral'

As shown above, compounds proper contain a linking vowel (LV), which connects two stems. It is usually the vowel *-o-*, as in (2a–c). In less common cases, when the first constituent is a verb, as in *łamigłówka* 'puzzle' in (1b), the linking element is the vowel *-i-* [i] (or *-y-* [ɨ]). Yet another vari-

ant of the interfix is the vowel *-u-*, which is encountered when the first compound constituent is the numeral *dw-* 'two,' as in (2d).

Inflectional endings attach to right-hand stems,[1] for instance, *czerwon-* 'red' in *biało-czerwony* 'red and white' in (2b), *główk-* 'head.DIM' in *łamigłówka* 'puzzle, brain teaser' in (1b), *słup* 'pole' in *ostrosłup* 'pyramid' in (3a), and *dąb* 'oak' in *wyrwidąb* 'strong man' in (3b).

(3) a. *ostrosłupy*
ostr-o-słup-y
sharp+LV+pole+M.NOM.PL
'pyramids'
b. *wyrwidęby*
wyrw-i-dęb-y
pull_out+LV+oak+M.NOM.PL
'(fig.) strong men; athletes'

The right-hand constituent tends to be the morphological head, which determines the grammatical gender of the whole compound.[2] The word *główka* 'head.DIM' is of feminine gender, which is transmitted (i.e., which percolates) to the compound *łamigłówka* 'puzzle' in (1b). *Słup* 'pole' and *dąb* 'oak' are of masculine gender, and so are the compounds *ostrosłup* 'pyramid' and *wyrwidąb* 'strong man, athlete' in (3ab). The two compounds differ in that *ostrosłup* is endocentric (and thus, *słup* 'pole, column' is both its semantic and morphological head), while *wyrwidąb* 'strong man, athlete' is an exocentric one. The right-hand constituent of *wyrwidąb* is its morphological head but not a semantic head (which should surface as 'person,' if it were overt). *Łamigłówka* 'puzzle, brain teaser' in (1b) is exocentric as well; thus, its right-hand constituent *główka* 'head.DIM' is not its semantic head.

In the compounds proper mentioned above (in 1–3), the only marker of composition is the linking vowel. This pattern of compound formation is comparable, to some extent, to English root compounds (e.g., *wallpaper, fathead*), in which the concatenation of stems does not trigger the addition of any nominalising or adjectivising suffix.

There is yet another type of morphologically complex words whose formation involves both compounding and derivation, but which are traditionally regarded as compounds proper (e.g., by Szymanek 2010, Grzegorczykowa and Puzynina 1998, and Nagórko 2016). These are so-called

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[1] The compounds in (3a) and (3b) are given in their plural form, to show the attachment of *-y* as an overt marker of NOM.PL (in the case of masculine gender nouns, the NOM.SG ending is not overt).

[2] See, however, the discussion of interfixal-paradigmatic formations below.

interfixal-suffixal formations, exemplified in (4). In their case, both the linking vowel and the compound-final suffix, that is, *-ca*, *-stwo*, and *-ec*, are regarded as markers of the composition process: the concatenation of two stems is accompanied both by the insertion of the linking element *-o-* and the addition of the suffix. Such an assumption is made when the part of the compound which follows the linking vowel is not an independently occurring word, namely, **krążca*, **łówstwo*, **ziemiec*, and **rożec*, or when it does occur as an independent word, for instance, *dawca* 'donor.'

(4) a. *domokrążca*
dom-o-krąż-c-a
house+LV+rotate+NMLZ+NOM.SG
'door-to-door salesman' (cf. **krążca*)

b. *rybołówstwo*
ryb-o-łów-stw-o
fish+LV+catch+NMLZ+NOM.SG
'fishing, fishing industry' (cf. **łówstwo*)

c. *cudz-o-ziemi-ec*
foreign+LV+land+NMLZ[M.NOM.SG]
'foreigner' (cf. **ziemiec*)

d. *nosorożec*
nos-o-roż-ec
nose+LV+horn+NMLZ [M.NOM.SG]
'rhinoceros' (cf. **rożec*)

e. *krwiodawca*
krwi-o-daw-c-a
blood+LV+give+NMLZ+NOM.SG
'blood donor'

The lexemes *domokrążca* 'door-to-door salesman,' *krwiodawca* 'blood donor,' and *rybołówstwo* 'fishing industry' can be analysed as synthetic compounds (like the English compounds *bookseller* and *truck-driver*). The verb roots *krąż-* 'to circulate; to rotate,' *daw-* 'give,' and *łów-/łow-* 'catch, fish' are followed by the nominalising suffixes *-ca* and *-stwo*. The lexemes *cudzoziemiec* 'foreigner' and *nosorożec* 'rhinoceros' in (4c–d) can be treated as parasynthetic compounds, such as *red-haired* and *blue-eyed* in English (Bisetto and Melloni 2008). Although their second constituent is not deverbal (in which respect such lexemes differ from the synthetic compounds in 4a–b), the coining of parasynthetic compounds involves the concatenation of two stems linked by the interfix *-o-* and the addition of the nominalising suffix (here *-ec*).

The third subtype of compounds proper, referred to as interfixal-paradigmatic formations by Szymanek (2009, 2010), Grzegorczykowa and Puzynina (1998), and Nagórko (2016), is exemplified in (5). In the case of such compounds, the co-formatives are the linking vowel and the word-final paradigmatic formative (i.e., the zero suffix). Thus, it is a case of composition combined with paradigmatic formation (i.e., a change of the inflectional paradigm of the right-hand compound constituent). For instance, while the right-hand constituent in *czarnoziem* 'chernozem' is the feminine gender noun *ziemia* 'land, soil,' the whole compound is inflected according to the masculine declension. The nouns *wodogłowie* 'water on the brain, hydrocephalus' and *płaskostopie* 'flatfoot' are of neuter gender, while the nouns which occur as their right-hand stems are of feminine gender.

(5) a. *czarnoziem*
czarn-o-ziem
black+LV+land [M.NOM.SG]
'chernozem, i.e. very fertile black-coloured soil' (cf. *ziemia* (f.) 'land, soil')
b. *wodogłowie*
wod-o-głowi-e
water+LV+head+N.NOM.SG
'water on the brain, hydrocephalus' (cf. *głowa* (f.) 'head')
c. *płaskostopie*
płask-o-stopi-e
flat+LV+foot+N.NOM.SG
'flatfoot, flat foot, pes planus'(cf. *stopa* (f.) 'foot')

In the case of the compounds proper given in (6), which also belong to interfixal-paradigmatic formations, the word-final zero-suffix has a nominalising function, as proposed by Szymanek (2010: 222) and Kolbusz-Buda (2014: 121). The verb stems *pis-* 'write' and *mierz-* 'count,', which occur in *długopis* 'ballpen' and *kątomierz* 'protractor,' do not occur in isolation as nouns.

(6) a. *kątomierz*
kąt-o-mierz
angle+LV+measure+ø
'graduated arc, protractor'
b. *długopis*
dług-o-pis
long+LV+write+ø
'ballpen'

The composite expressions in (7) can be regarded as representing a distinct type of compounds proper, in which there is neither a linking vowel nor a word-final affix to accompany the concatenation of stems. The compounds in (7a–b) are close to prefixal derivatives, as their left-hand constituents, that is, *pół* 'half' and *trój* 'three,' can alternatively be treated as prefixes, and not as stems. The complex lexemes in (7c–d) are modelled on similar compounds in German (i.e., *Kapellmeister* and *Zunftmeister*), which lack any linking element. The influence of the English pattern of NN compounding on Polish can be perceived in (7e–f): *seksoferta* 'sex offer' and *Kredyt Bank* 'Credit Bank.'

(7) a. *trójskok* (three+jump) 'triple jump'
b. *półnuta* (half+note) 'half-note'
c. *kapelmistrz* (band+master) 'bandleader'
d. *cechmistrz* (guild+master) 'head guildsman'
e. *seksoferta* (sex+offer) 'sex offer'
f. *biznesplan* (business+plan) 'business plan'
g. *Kredyt Bank* (credit+bank) 'Credit Bank'
h. *radio wiadomości* (radio+news) 'radio news'
i. *biznes-śniadanie* (business+breakfast) 'business breakfast'

The growing productivity of right-headed interfixless NN combinations in Polish has been emphasised by, among others, Jadacka (2001, 2009, 2010), Waszakowa (2010), Mańczak-Wohlfeld and Witalisz (2016), and Witalisz (2018). According to Jadacka (2001: 116), interfixless compounds constitute 40.94% of all novel compound nouns coined between 1989 and 2000.

Witalisz (2018) demonstrates that, apart from lexical loans from English (e.g., 7f–g), loan translations, or half-translations (7h–i), there occur interfixless combinations which contain one or more native stems and which cannot be treated as translations of corresponding English NN compounds, such as *klejmen* (lit. glue man) 'drug addict,' *bizneslinkownia* (lit. business link_list) 'list of job offers,' *kucharz pomoc* (lit. cook help) 'cook's helper.' She argues that right-headed interfixless NN combinations constitute a novel type of composite expressions in Polish, distinct from the three types mentioned at the beginning of this chapter, that is, distinct from compounds proper, solid compounds, and juxtapositions.

Waszakowa (2010) treats interfixless NN combinations written as separate or hyphenated orthographic words (e.g., 7g–i) as juxtapositions, although in contrast to other juxtapositions (as discussed in Section 3.2), their left-hand constituents are not inflected. Jadacka (2001: 94–95, 2010) regards NN units which are written as single orthographic words and

which lack the linking vowel, for instance, those in (7c–f), as solid compounds.[3] She also includes formations in (8) in her group of solid compounds. However, their left-hand constituents can be regarded as prefixes (see Burkacka 2010). Alternatively, they can be recognised as initial combining forms:[4] *euro-*, *eko-*, *narko-*, *tele-* (see Grzegorczykowa and Puzynina 1998: 465–467).

(8) a. *euroobligacje* (euro+bonds) 'eurobonds'
b. *ekofundusz* (eco+fund) 'ecofund'
c. *narkobiznes* (narco+business) 'drug trafficking, narco-trafficking'
d. *telezakupy* (tele+shopping) 'teleshopping'

It can be pointed out that the formations in (7) and (8) cannot be traced back to "frozen" phrases or sentences (Długosz-Kurczabowa and Dubisz 1999), in contrast to other solid compounds (as those in 10). More discussion of properties of solid compounds will follow below.[5]

First, however, let us observe that compounds proper in Polish represent mainly compound nouns and compound adjectives (cf. Grzegorczykowa and Puzynina 1984; Szymanek 2010). Compound verbs are exceptional (see Nagórko 2016).

When Scalise and Bisetto's (2009) compound classification is applied to Polish compounds proper, examples can be found of the three major structural types, namely, subordinate, attributive, and coordinate compounds.

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[3] Jadacka (2010) also regards selected VN combinations, such as *dusigrosz* (squeeze+LV+penny+ø) 'skinflint' and *włóczykij* (drag+LV+stick+ø) 'drifter, vagabond,' as solid compounds, since she treats the compound-internal vowels *-i-/-y-* not as interfixes but as inflectional stem-forming morphemes. Moreover, she analyses *gubernator-generał* (governor general) 'governor-general (in the Russian empire),' *umowa-zlecenie* (agreement commission) 'contract agreement,' and *chłopek-roztropek* (peasant.DIM sage) 'country bumpkin' as solid compounds, although they consist of independently inflected constitutents and can be treated as juxtapositions.

[4] Grzegorczykowa and Puzynina (1998: 455–456) treat lexemes which consist of two combining forms, for instance, *termometr* 'thermometer' and *bibliografia* 'bibliography,' as quasi-compounds (Pol. *quasi-złożenia*). Lexemes containing one combining form, for instance, *neogotyk* 'neo-Gothic' and *mikrostruktura* 'microstructure,' are regarded as compounds which show partial (i.e., unilateral) semantic motivation (Polish *złożenia jednostronnie motywowane*).

[5] A useful comparison of various definitions of *zrosty* (i.e., solid compounds) proposed by Polish morphologists can be found in Jadacka (2010).

(9) Subordinate endocentric compounds: *krwiodawca* 'blood donor,' *bajkopisarz* 'writer of fables'
subordinate exocentric compounds: *listonosz* (letter+LV+carry+Ø) 'postman,' *łamigłówka* 'puzzle'
coordinate endocentric compounds: *spódnicospodnie* 'skirt-trousers, cullotes,' *czarno-biały* 'black and white,' *półkotapczan* (shelf+LV+sofa) 'wall bed'
coordinate exocentric compounds:[6] *rosyjsko-angielski (słownik)* 'Russian-English (dictionary),' *polsko-niemieckie (konsultacje)* 'Polish-German (consultations)'
attributive endocentric compound: *żywopłot* 'hedge,' *ostrosłup* 'pyramid'
attributive exocentric compound: *wodogłowie* 'water on the brain, hydrocephalus,' *zielononóżka* (green+LV+leg+DIM) 'green-legged partridge hen'

Let us now look at solid compounds, such as those in (10). They result from fixed syntactic phrases, as is pointed out by Długosz-Kurczabowa and Dubisz (1999) and Szymanek (2010: 224). The compound *dobranoc* 'good night' in (10a) can occur in expressions such as *pocałować kogoś na dobranoc* 'kiss sb goodnight,' and it comes from the noun phrase *dobra noc* 'good night.'

(10) a. *dobranoc*
good+night
'goodnight'
b. *dobranocka*
dobr-a-noc-k-a
good+NOM.SG+night+DIM+NOM.SG
'bedtime TV cartoon'
c. *czcigodny*
czc-i-godn-y
respect+GEN.SG+worth+NOM.SG
'venerable'
d. *lekceważyć*
lekc-e-waż-y-ć
light+ADVZ+weigh+TH+INF
'to treat with disrespect, to neglect'

[6] Compound adjectives in Polish which express a relationship between two separate entities, as in *rosyjsko-niemiecki* 'Russian-German,' are treated here as exocentric. I follow the treatment of similar adjectives in English by Bauer et al. (2013: 481) and Bauer (2017: 66).

Solid compounds share with compounds proper some properties attributed cross-linguistically to morphological compounds. They are written as single orthographic words. Their stress pattern resembles that of non-derived words or affixal derivatives. While each of the constituents of the noun phrase *'dobra 'noc* 'good night' carries its own stress, there is only one stressed syllable, that is, *ra-*, in the solid compound *dobranoc* 'goodnight.' In the solid compounds in (10b–d), the main lexical stress also falls on the penultimate syllable, namely, *noc-* in *dobranocka* 'bedtime cartoon,' *god-* in *czcigodny* 'venerable,' or *wa-* in *lekceważyć* 'to neglect.' There may be secondary stresses placed on the initial syllables, that is, *do-* in *dobranocka* and *lek-* in *lekceważyć*. As the examples above indicate, solid compounds include compound nouns, adjectives, and verbs. They exhibit semantic opacity, for instance, *dobranocka* does not denote a kind of night, but a cartoon. They may show archaic syntactic or inflectional features; for example, the compound in (10d) contains the archaic adverbial form *lekce* 'lightly' instead of the current form *lekko* 'lightly.' The word order of elements in solid compounds may deviate from the canonical word order in corresponding syntactic phrases. As shown in (11), the genitive noun phrase, which is a complement to the adjective, normally follows its head, while it precedes the head in the solid compound in (10c).

(11) *godn-y* *czc-i*
worth+NOM.SG respect+GEN.SG
'deserving respect'

Instead of containing the vocalic interfix *-o-*, solid compounds contain compound-internal inflectional endings (attached to the first stem), such as *-a-* in *dobranocka* and *-i-* in *czcigodny*. In the majority of solid compounds (e.g., in 12), it is only the right-hand constituent which is inflected, while the inflectional ending attached to the left-hand stem remains unchanged and functions as a kind of linking vowel.

(12) a. *dobr-a-noc-k-i*
good+NOM.SG+night+DIM+GEN.SG
'(of) bedtime cartoon'
b. *dobr-a-noc-k-ami*
good+NOM.SG+night+DIM+INS.PL
'(with) bedtime cartoons'

Some solid compounds require each of their constituents to be inflected separately, even though they form one orthographic word, one prosodic

word, and one conceptual unit. This is the case of *Białystok* (lit. white slope), which is a name of a large city in northeastern Poland.

(13) a. *Biał-y-stok*
white+NOM.SG+slope[NOM.SG]
'Białystok (NOM.SG)'
b. *Biał-ego-stok-u*
white+GEN.SG+slope+GEN.SG
'(of) Białystok' (GEN.SG)
c. *Biał-ym-stok-iem*
white+INS.SG+slope+INS.SG
'(with) Białystok' (INS.SG)

There exist solid compounds which exhibit two inflectional patterns. Either the left-hand stem is followed by the same inflectional ending (e.g., F.NOM.SG marker *-a*) in all case forms, or both compound constituents are inflected, in spite of being written as one orthographic word. This is the case of the word *Wielkanoc* 'Easter', as shown in (14).

(14) a. *Wielk-a-noc*
great+NOM.SG+night[NOM.SG]
'Easter' (NOM.SG)
b. *Wielk-a-noc-y*
great+NOM.SG+night+GEN.SG
'(of) Easter' (GEN.SG)
b.′ *Wielk-iej-noc-y*
great+GEN.SG+night+GEN.SG
'(of) Easter' (GEN.SG)
c. *Wielk-a-noc-ą*
great+NOM.SG+night+INS.SG
'(with) Easter' (INS.SG)
c.′ *Wielk-ą-noc-ą*[7]
great+INS.SG+night+INS.SG
'(with) Easter' (INS.SG)

Compounds proper and solid compounds in Polish exhibit properties of non-derived or morphologically complex words, such as lexical integrity and cohesion. The internal modifiers of any of the constituents are not accepted, as shown by the ill-formedness of the coordinate com-

[7] The inflectional variant *Wielkąnocą* is rare. Moreover, examples can be found of this variant written as two separate orthographic words, that is, *Wielką Nocą*, and then it has the status of a juxtaposition.

pound **szybkomarszobieg* (fast+march+LV+run) and **marszoszybkobieg* (march+LV+fast+run). There is no subordinate compound **morskorybołówstwo* (marine+LV+fish+LV+catch+NMLZ+NOM.SG) with the intended meaning 'sea fishing'[8] and related to the compound *rybołówstwo* 'fishing, fishing industry' (in 4a).

Compounds proper are not reversible. The attributive compound *żywopłot* (live+LV+fence) 'hedge' cannot appear in the variant form **płotożyw* (fence+LV+live). The coordinate compound noun *zlewozmywak* (sink+LV+sink) 'washbasin' cannot be changed into **zmywakozlew*; nor can *marszobieg* (march+LV+run) 'run/walk; endurance march' be replaced by **biegomarsz*.[9] They are not recursive, either. While there are coordinate compounds consisting of two stems, for instance, *barmanokelner* (bartender+LV+waiter) 'waiter and bartender,' the name for a profession which involves being a waiter, bartender, and barista, namely, the potential compound ??*barmanokelnerobarista* (bartender+LV+waiter+LV+barista), is not attested and sounds odd. There are rare instances of three-stem compounds proper in literary language, such as the neologism *zwierzoczłekoupiór* (animal+LV+man+LV+ghost) 'werewolf,' used by Tadeusz Konwicki as a title of his novel, or the jocular formation *zwierzo-człeko-reżyser* (animal+LV+man+LV+film_director), occurring in an article devoted to Konwicki as a writer and film director (https://kultura.onet.pl/tadeusz-konwicki). These neologisms can be contrasted with the institutionalised two-stem compound *zwierzoczłek* (animal+LV+man) 'man-animal, werewolf.'

The internal structure of compounds proper is not visible to syntactic operations. The non-head constituent of the compound *łamigłówka* (break+LV+head+DIM+NOM.SG), that is, the feminine noun *główka* 'head. DIM,' is not a possible antecedent for the pronoun *ona* 'she' in (15).

(15)	*Zaczęłam*	*rozwiązywać*	*łamigłówkę,*	*więc*	*ona*
	start.PST.1SG	solve.IPF.INF	break+LV+head$_i$+DIM+ACC.SG	so	she/it*$_i$
	przestała	*mnie*	*boleć*.		
	stop.PST.3SG	me.ACC	ache.IPF.INF		

'I started solving a puzzle (lit. head-breaker) so it stopped aching.' (*it* is not coreferential with *head*)

[8] Instead, the phrasal noun (N+A combination) is used: *rybołówstwo morskie* (fishing marine) 'sea fishing.'

[9] Occasionally, coordinate compounds proper exhibit word order variation. Apart from *barmanokelner* (bartender+LV+waiter), one can come across *kelnerobarman* (waiter+LV+bartender) 'waiter and bartender.'

Coordination of non-head compound elements is not expected to occur, either. The forms in (16) sound either unacceptable or odd.[10]

(16) a. **prac-o-* *i* *krwi-o-dawc-y*
work+LV and blood+LV+giver+NOM.PL
the intended meaning: 'employers and blood donors'
b. *??bajk-o-* *lub* *powieści-o-pisarz-e*
fable+LV or novel+LV+writer+NOM.PL
the intended meaning: 'writers of fables or novelists'

It must be admitted, though, that coordination is fairly acceptable in the case of compound nouns and compound adjectives which contain numerals or names of fractions,[11] such as *dwu-* 'two,' *trój-* 'three-,' *ćwierć* 'quarter,' and *pół* 'half' (see Cetnarowska 2015a).

(17) a. *dwu- lub trójjęzyczny*
'bi- or trilingual'
b. *pierwszo- i drugoklasiści*
'first- or second-form pupils'
c. *pół- lub ćwierćnuta*
'half- or quarter-note'

Non-heads of other types of compound adjectives can be coordinated in parallel structures, as shown in (18).

(18) a. *krótko- i długoterminowe cele*
short- and long-term.RA objective.NOM.PL
'short (-term) and long-term objectives'
b. *styl wczesno- lub późnobarokowy*
style early or late+baroque.RA
'early or late-Baroque style'

Compounds proper, as well as solid compounds, can become input to word-formation processes. In (19a–d) there are examples of adjectives de-

[10] The type of the semantic relations between the modifier and the head in coordinated compounds influences the acceptability of the resulting structures (as argued in Cetnarowska 2015a). The string *?krwio- lub szpikodawcy* (lit. blood or marrow givers) 'blood donors or bone marrow donors' sounds more natural than the string in (16a).

[11] Compound nouns, such as *ćwierćnuta* 'quarter-note,' *półnuta* 'half-note,' and *ćwierćlitrówka* 'quarter-litre bottle' allow their constituents to be separated by parenthetical elements, for instance, *ćwierć-, a nawet półnuta* 'quarter-(note), and maybe even half-note.'

rived from the compound nouns proper (given in 19a′b′c′) and from the solid compound (given in 19d′).

(19) a. *marsz-o-bieg-ow-y* (march+LV+run+ADJZ+NOM.SG) 'relating to endurance march'
(e.g., *trening marszobiegowy* 'training relating to endurance march')
a.′ *marsz-o-bieg* (march+LV+run) 'run/walk; endurance march'
b. *baw-i-dam-k-owat-y* (play+LV+lady+DIM+ADJZ+NOM.SG) 'looking like a ladies' man; showing qualities typical of a ladies' man'
(e.g., *bawidamkowaty twardziel* 'tough guy who looks like a ladies' man')
b.′ *baw-i-dam-ek* (play+LV+lady+DIM) 'ladies' man'
c. *pół-głów-k-owat-y* (half+head+DIM+ADJZ+NOM.SG) 'zanyish, half-witted'
(e.g., *półgłówkowaty dziennikarz* 'zanyish journalist')
c.′ *półgłówek* (half+head+DIM) 'half-wit'
d. *dobr-a-noc-n-y* (good+NOM.SG+night+ADJZ+NOM.SG) 'relating to bedtime'
(e.g., *dobranocny ogród* (goodnight.RA garden) 'In the Night Garden' – a BBC children's television series)
d.′ *dobranoc* (good+NOM.SG+night) 'goodnight, bedtime'

Suffixes which can be attached to compound nouns include also the feminine suffixes *-ka* and *-yni* (see 20a, 20b).

(20) a. *list-o-nosz-k-a* (letter+LV+carry+NMLZ+NOM.SG) 'postwoman, female mail carrier'
a.′ *list-o-nosz* (letter+LV+carry+ø) 'postman, mail carrier'
b. *kapel-mistrz-yn-i* (band+master+NMLZ+NOM.SG) 'female bandmaster'
b.′ *kapel-mistrz* (band+master) 'bandmaster, Kapellmeister, concertmaster'

Compound adjectives (both the compound proper in 21a′ and the solid compound in 21b′) can become bases for abstract nouns derived by means of the suffix *-ość* (in 21a, 21b).

(21) a. *rak-o-twór-cz-ość* (cancer+LV+create+ADJZ+NMLZ) 'carcinogenicity'
a.′ *rak-o-twór-cz-y* (cancer+LV+create+ADJZ+NOM.SG) 'carcinogenic'
b. *czc-i-godn-ość* (respect+GEN.SG+worth+NMLZ) 'worshipfulness'
b.′ *czc-i-godn-y* (respect+GEN.SG+worth+NOM.SG) 'venerable'

The next section will be devoted to N+A, A+N and N+N combinations which are traditionally referred to as juxtapositions, and which will be treated here as phrasal nouns.

3.2 Types of juxtapositions in Polish

The term juxtapositions (Pol. *zestawienia*) is traditionally used by Polish morphologists (e.g., Szober 1923; Grzegorczykowa 1982) to refer to multi-word units treated as a third subtype of composite expressions (apart from compounds proper and solid compounds). Juxtapositions consist of fully inflected words and show internal phrasal structure. The head constituent either governs the case of the non-head, as in (22a), or it enters into the relation of agreement with the non-head, as in (22b) and (22c). They are written as single orthographic words or as hyphenated words.[12]

(22) a. *prawo jazdy*

praw-o	jazd-y
right+NOM.SG	driving+GEN.SG

'driving licence'

b. *panda wielka*

pand-a	wielk-a
panda+NOM.SG	great+NOM.SG

'giant panda'

c. *kierowca-dostawca*

kierowc-a	dostawc-a
driver+NOM.SG	deliverer+NOM.SG

'delivery driver'

Juxtapositions do not exhibit properties characteristic of morphological compounds (as specified by Lieber and Štekauer 2009, or Ralli 2013), and so they differ from Polish compounds proper and from solid compounds. Each constituent of a juxtaposition is the locus of inflection (as in 22–23). Consequently, juxtapositions contain no linking vowels or other compound-specific markers. Lexical stress is assigned to each constituent of a juxtaposition and (usually) falls on their penultimate syllables (see 23, where the stressed vowels are capitalised).

[12] According to prescriptive sources, for example, Karpowicz (2009: 102), NN juxtapositions of the coordinate type should be hyphenated (such as those in 22c), while subordinate and attributive juxtapositions (e.g., 22a–b) should be written as independent words. However, this prescriptive rule was not operative earlier, for instance, in the 19th century and 20th century writings, as shown by the examples of coordinate phrasal nouns given by Damborský (1966) and Kallas (1980). Currently, speakers do not adhere to it strictly, either.

(23) a. *egzamIny końcOwe*
egzamin-y końcow-e
exam+NOM.PL final+NOM.PL
'final exams'
b. *wywIAdy rzEki*
wywiad-y rzek-i
interview+NOM.PL river+NOM.PL
'extended interviews'

In contrast to compounds proper and solid compounds (which are right-headed), the majority of juxtapositions are left-headed in Polish. This is shown in (24) .

(24) a. *młod-y* *krwi-o-dawc-a*
young+M.NOM.SG blood(f)+LV+giver+M.NOM.SG
'a/the young blood donor'
b. *młod-y* *dawc-a* *krw-i*
young+M.NOM.SG giver+M.NOM.SG blood+F.GEN.SG
'a/the young blood donor'

The compound proper *krwiodawca* 'blood donor' in (24a) consists of the (stem of the) lexeme *krew* 'blood,' which is of feminine grammatical gender, and of the lexeme *dawca* 'giver.' The latter lexeme can be treated as the head of the compound; hence, its grammatical gender (i.e., masculine gender) percolates to the whole compound. The adjective *młody* 'young,' which occurs as the premodifier of the compound, agrees in gender with the compound's head. In the N+N.GEN juxtaposition in (24b), the head noun is of masculine gender, while the genitive modifier (i.e., the genitive attribute *krwi* '(of) blood') is of feminine gender. The attributive adjective *młody* 'young' takes the masculine inflectional endings.

In (25a), the attributive adjective takes the feminine inflectional ending *-a* since the head of the compound proper (i.e., its right-hand member *konferencja* 'conference') is of feminine gender. The juxtaposition *kurs-konferencja* in (25b) consists of two nouns which agree in case and number, though differ in their grammatical gender. The morphological head of the juxtaposition in (25b) is its left-hand constituent, that is, *kurs* 'course.' It is a masculine gender noun; hence, the attributive adjective takes the masculine inflectional ending *-y*.

(25) a. *kolejn-a* *kurs-o-konferencj-a*
next+F.NOM.SG course(M)+LV+conference+F.NOM.SG
b. *kolejn-y* *kurs* *konferencj-a*
next+M.NOM.SG course[M.NOM.SG] conference+F.NOM.SG
'the next training conference' (25a = 25b)

Juxtapositions which are right-headed include AN combinations, such as *chude mleko* (lean milk) 'low-fat milk' and *nocny autobus* (night.RA bus) 'night bus.'

(26) a. *zdrow-e* *chud-e* *mlek-o*
healthy+N.NOM.SG lean+N.NOM.SG milk+N.NOM.SG
'healthy low-fat milk'
b. *now-y* *nocn-y* *autobus*
new+M.NOM.SG night.RA+M.NOM.SG bus[M.NOM.SG]
'a/the new night bus'

NA juxtapositions, on the other hand, are left-headed, as can be seen in (23a) and in (27).

(27) a. *lokomotyw-a* *par-ow-a*
locomotive+F.NOM.SG steam+ADJZ+F.NOM.SG
'steam locomotive'
b. *imiesłów* *biern-y*
participle[M.NOM.SG] passive+M.NOM.SG
'passive participle'
c. *szczęśliw-a* *pann-a* *młod-a*
happy+F.NOM.SG maid+F.NOM.SG young+F.NOM.SG
'a happy bride'

Polish juxtapositions can be split into several subtypes, according to the syntactic category of their constituents and their order, and depending on whether there is a relation of case assignment or agreement obtaining between them (cf. Grzegorczykowa 1982). These types are exemplified in (28–32).[13]

[13] This list could be extended to include NN.INS combinations, such as *rzut oszczepem* (throw.NOM javelin.INS) 'javelin throw' and *obróbka skrawaniem* (treatment.NOM cutting.INS) 'machining,' which are less common than NN.GEN juxtapositions. I do not discuss here N CONJ N and V CONJ V combinations, which are fairly idiomatic, for instance, *chlebem i solą* (bread.INS and salt.INS) '(greeting someone) with bread and salt, showing hospitality,' or *wstać i wyjść* 'to get up and leave.'

(28) A+N:
  a. *wieczne pióro* (eternal pen) 'fountain pen'
  b. *czarna jagoda* (black berry) 'bilberry'

(29) N+A:
  a. *inżynier biomedyczny* (engineer biomedical) 'biomedical engineer'
  b. *panel słoneczny* (panel solar) 'solar panel'

(30) N+N.GEN:
  a. *dom dziecka* (home.NOM child.GEN) 'children's home'
  b. *górnictwo miedzi* (mining.NOM copper.GEN) 'copper mining'

(31) N+N:
  a. *murarz-tynkarz* (bricklayer plasterer) 'bricklayer plasterer'
  b. *kobieta-guma* (woman rubber) 'female contortionist'

(32) N+PP:
  a. *maszyna do szycia* (machine for washing) 'washing mashine'
  b. *dziurka od klucza* (hole from key) 'keyhole'

In this monograph, I will focus on Polish NN, NN.GEN, NA, and AN combinations. No attention will be given to N+PP juxtapositions, partly for reasons of space. Moreover, the preposition which is a constituent of Polish N+PP combinations, such as *od* 'from' in *dziurka od klucza* in (32b) or *do* 'for' in *maszyna do szycia* in (32a), is not "semantically empty," in contrast to some prepositions which occur in Romance phrasal nouns, for instance, *de* in French *chanson d'amour* 'song of love,' *de* in Portuguese *cadeira de rodas* (lit. chair of wheels) 'wheel chair,' or *di* in Italian *casa di cura* (lit. house of treatment) 'nursing home.'[14]

The Polish juxtapositions discussed here can be divided according to the structural-semantic relationship between their constituents into subordinate, coordinate, and attributive (ATAP) juxtapositions. In other words, Scalise and Bisetto's (2009) compound typology can be applied to them, as indicated in (33). The overwhelming majority of those juxtapositions are endocentric formations. For example, the NN.GEN combination *dom studenta* (house student.GEN) 'dormitory' is a hyponym of its head *dom* 'house,' as it denotes a type of a building. Exocentric juxtapositions are more difficult to find.[15] They include multi-word units which are not semantically

[14] This is the reason why ten Hacken and Kwiatek (2013) exclude Polish N+PP combinations from the domain of compounds (i.e., from the domain of composite expressions). Let us point out, however, that Masini and Benigni (2012) regard Russian N+PP combinations with "meaningful" prepositions (e.g., *za* 'for,' *v* 'in,' or *na* 'for') as composite units, that is, as phrasal nouns. The status of N+PP units requires more indepth cross-linguistic study.

[15] I could not find an unambiguous example of coordinate exocentric NN juxtapositions to include in (33).

compositional; hence, they are not hyponyms of their head constituents. For instance, the AN juxtaposition *biały kruk* (white raven) 'rare specimen' does not denote a type of raven but refers to an object which is rare and precious, for instance, an old book. The NN.GEN juxtaposition *pies ogrodnika* (dog.NOM gardener.GEN) 'dog in the manger' can also be regarded as an exocentric combination, since it does not refer to a dog. It denotes a person who prevents others from having something that is useless to him or her.

(33) subordinate endocentric juxtapositions:
dom studenta (house.NOM student.GEN) 'dormitory,'
dostawca internetu (provider.NOM Internet.GEN) 'ISP, InternetService Provider,'
dawca krwi 'blood donor'
subordinate exocentric juxtapositions:
pies ogrodnika (dog.NOM gardener.GEN) 'dog in the manger'
coordinate endocentric juxtapositions:
poeta-tłumacz 'poet translator,' *aktor-tancerz* 'actor-dancer,'
zegarek-bransoletka (watch bracelet) 'bracelet-watch; watch with a bracelet'
attributive endocentric juxtapositons:
lokomotywa parowa (locomotive steam.RA) 'steam locomotive,'
filtr piaskowy (filter sand.RA) 'sand filter,'
kurtka zimowa (jacket winter.RA) 'winter jacket'
attributive exocentric compound:
biały kruk (white raven) 'rare specimen,'
boża krówka (god.RA cow.DIM) 'ladybird,'
opera mydlana (opera soap.RA) 'soap opera'

The treatment of juxtapositions as phrasal or morphological objects has varied over the years. In traditional approaches (e.g., Szober 1923) and in diachronic studies (Długosz-Kurczabowa and Dubisz 1999), the link between juxtapositions and compounds proper is emphasised (and therefore, juxtapositions form a subtype of composite expressions).

As is indicated by some evidence from the history of the Polish language (Handke 1976: 22; Długosz-Kurczabowa and Dubisz 1999: 65–66), Polish juxtapositions can change into solid compounds, or into compounds proper. This is what happened to the AN juxtaposition in (34a), which later changed into a solid compound, and was finally replaced by a compound proper. This is manifested by a change in the number (and type) of inflectional endings. The juxtaposition in (34a) consists of two lexemes (A+N), each of which is inflected and written as a separate orthographic word. In (34b), the inflectional (NOM.SG) ending of the left-hand constituent stays intact in other case forms of the AN combination, and it starts functioning as

a kind of linking vowel. It is thus a solid compound, written as a single orthographic unit. In (34c) the word-internal vowel *-a-* is replaced by a regular compound-specific interfix, that is, the vowel *-o-*. The resulting formation is an exocentric attributive compound proper. The compound is semantically lexicalised, though the semantic motivation may still be visible to some speakers of Polish. 'White head' refers to a white headdress, covering the head, neck, and sides of the face, which was worn by married women in the late medieval period. This type of headdress is still worn by nuns.

(34) a. *biał-a głow-a* (white.NOM.SG head.NOM.SG) '(married) woman' (NOM.SG)
biał-ej głow-y (white.GEN.SG head.GEN.SG) '(of) (married) woman' (GEN.SG)
b. *biał-a-głow-a* (NOM.SG), *biał-a-głow-y* (GEN.SG) (solid compound)
c. *biał-o-głow-a* (NOM.SG), *biał-o-głow-y* (GEN.SG) (compound proper)

Forms in (34a) and (34b) are attested in historical texts and historical dictionaries of the Polish language. The compound proper in (34c) dropped out of usage in the 18th century, but it can be used in archaic stylisation.

In (35a–b), the name of a deciduous shrub (*Daphne mezereum*), whose twigs and berries are toxic, appears as an AN juxtaposition, with both constituents inflected separately and written as independent orthographic words. In (35c–d), this naming unit functions as a solid compound, written as a single orthographic word. The declensional ending appended to the adjectival stem (i.e. NOM.SG marker *-e*) assumes the function of a linking vowel, and it is only the right-hand stem which takes appropriate declensional endings when the solid compound is inflected (as in 35c). Example (35d) shows yet a further change in the status of the AN combination in question.[16] It appears as an appositive which follows the generic name of the family of shrubs *wawrzynek* 'Daphne.' It is not declined and retains the NOM.SG inflectional markers when the noun preceding it takes the genitive case ending, as in (35d).

(35) a. *wilcze łyko*

wilcz-e	łyk-o
wolf.RA+NOM.SG	bast+NOM.SG

'Daphne mezereum'

[16] While online dictionaries mention *wilczełyka* as an acceptable genitive form and examples such as (35c) can occasionally be found in Google searches, the prevailing pattern of inflection is the one in (35d), with the solid compound remaining uninflected. A search in the full NKJP corpus returns 18 examples of the genitive form *wawrzynka wilczełyko* (as in 35d) and no instances of *wilczełyka* (as in 35c).

b. *owoce wilczego łyka*
owoc-e wilcz-ego łyk-a
berry+NOM.PL wolf.RA+GEN.SG bast+GEN.SG
'berries of Daphne mezereum'

c. *owoce wilczełyka*
owoc-e wilcz-e-łyk-a
berry+NOM.SG wolf.RA+NOM.SG+bast+GEN.SG
'berries of Daphne mezereum'

d. *owoce wawrzynka wilczełyko*
owoc-e wawrzynk-a wilcz-e-łyk-o
berry+NOM.PL daphne+NOM.SG wolf.RA+NOM.SG+bast+NOM.SG
'berries of Daphne mezereum'

More examples of variation between juxtapositions and compounds proper will be provided in the section devoted to coordinate NN juxtapositions in Polish.

Polish morphologists who focus on synchronic word-formation and adopt structuralist or generative approaches (Grzegorczykowa and Puzynina 1984; Nagórko 1996; Szymanek 2010) devote little or no attention to NN.GEN and NA/AN units, which are regarded as belonging to the realm of syntax or phraseology.[17] The discussion of such multi-word combinations can be found, instead, in syntactic monographs and articles. Kallas (1980) investigates coordinate and attributive NN combinations, such as *aktor-tancerz* 'actor-dancer' or *kobieta-guma* (woman rubber) 'female contortionist,' and treats them as noun phrases in apposition. Rutkowski and Progovac (2005) and Rutkowski (2009) outline a syntactic analysis of NA combinations, such as *poczta dyplomatyczna* (mail diplomatic) 'diplomatic mail' or *panda wielka* (panda great) 'giant panda,' couched within the framework of the Minimalist Program. Willim (2001) investigates NA and NN multi-word expressions and regards them as syntactic units, though of special type (i.e., syntactic constructs). Nagórko (1996) refers to right-hand constituents of NN.GEN units, such as *mąż stanu* (man.NOM state.GEN) 'statesman' or *dom studenta* (house.NOM student.GEN) 'dormitory,' as genitive attributes, and treats adjectives occurring in NA complexes, for instance, *niedźwiedź polarny* (bear polar) 'polar bear' and *wino wytrawne* (wine dry) 'dry wine,' as adjectival attributes.

Ten Hacken (2013) and ten Hacken and Kwiatek (2013), on the other hand, assume that NN.GEN combinations and RA+N (or N+RA) complexes in Polish should be treated as regular compounds. They, however, use the term compounds in an extended sense (roughly corresponding to composite units) and allow some classes of compounds (e.g. NN.GEN com-

[17] Puzynina (1974) assumes that juxtapositions constitute the subject matter of phraseology.

plexes) to have phrasal structure. They employ arguments from translation studies to support their view. Ten Hacken (2013) juxtaposes selected naming units taken from French, Polish, and English to show that Polish (as well as French) NN.GEN and N+RA combinations serve as translation equivalents of English NN compounds (see examples in 36 and 37). *N de N* combinations in French are regarded by ten Hacken as genitive constructions, with *de* being the genitive marker (in contrast to Masini 2009, who treats them as N+PP phrasal nouns).

(36) a. *car factory* (English)
b. *usine d'automobiles* (factory of cars) (French)
c. *fabryka samochodów* (factory car.GEN.PL) (Polish)

(37) a. *cell division* (English)
b. *division cellulaire* (division cell.RA) 'cell division' (French)
c. *podział komórkowy* (division cell.RA) 'cell division' (Polish)

Further examples culled from specialist or general terminology, demonstrating that English, as well as German, NN compounds are often translated into Polish by means of N+RA or NN.GEN combinations, are given in (38–41). They are also amply illustrated in Chapter 4 of this book.

(38) a. *air filter* (English)
b. *Luftfilter* (air+filter) (German)
c. *filtr powietrza* (filter.NOM air.GEN) (Polish)

(39) a. *sand filter* (English)
b. *Sandfilter* (sand+filter) (German)
c. *filtr piaskowy* (filter.NOM sand.RA) (Polish)

(40) a. *labour law* (English)
b. *Arbeitsrecht* (work+interfix+law) (German)
c. *prawo pracy* (law.NOM work.GEN) (Polish)

(41) a. *maritime law* (English)
b. *Seerecht* (sea+law) (German)
c. *prawo morskie* (law sea.RA) (Polish)

Moreover, there are cases of translational equivalence between German AN morphological compounds, English AN compounds (or compound-like combinations), and Polish AN or NA complexes.

(42) a. *red wine* (English)
b. *Rotwein* (red+wine) (German)
c. *wino czerwone* (wine red) or *czerwone wino* (red wine) (Polish)

(43) a. *solar panel* (English)
b. *Sonnenkollektor* (sun+collector) (German)
c. *panel słoneczny* (panel sun.RA) (Polish)

Polish NA or AN complexes resemble Polish morphological compounds proper in that they can function as semantic bases for suffixal derivatives or morphological compounds. It was shown in Section 3.1 that Polish compounds proper, as well as solid compounds, can become bases for compound adjectives. Some more examples are provided in (44). The relational adjective in (44b) is derived from an exocentric compound proper, while the relational adjective in (44d) comes from a solid compound.

(44) a. *nosorożec* 'rhinocerous'
b. *nosorożcowy* 'relating to a rhinocerous or resembling a rhinocerous'
c. *Wielkanoc* (great+NOM.SG+night) 'Easter'
d. *wielkanocny* (great+NOM.SG+night+ADJZ+NOM.SG) 'relating to Easter'

The compound nouns in (45b, 46b) and the compound adjectives in (45c, 46c) are morphological compounds, as is indicated by the linking vowel *-o-*. They are semantically related to the NA and AN expressions in (45a, 46b).

(45) a. *Armia Czerwona* (army red) 'Red Army'
b. *czerwonoarmista* (red+LV+army+NMLZ+NOM.SG) 'Red Army soldier'
c. *czerwonoarmijny* (red+LV+army+ADJZ+NOM.SG) 'related to Red Army'

(46) a. *wolny rynek* (free market) 'free market'
b. *wolnorynkowiec* (free+LV+market+ADJZ+NMLZ) 'supporter of free market economy'
c. *wolnorynkowy* (free+LV+market+ADJZ+NOM.SG) 'related to free market'

Polish NA and AN combinations resemble in this respect phrasal names in Greek, Dutch, or Russian, which can become input to word-formation operations (as illustrated in Chapter 1). Slavists employ the term univerbation (Pol. *uniwerbizacja*) when describing the phenomenon of "squeezing" AN (or NA) units (see Szymanek 2010: 69; Martincová 2015: 742; Nagórko 2016: 2839). Masini and Benigni (2012) refer to this type of operation in Russian as morphological condensation. A particularly common type of univerbation in Polish results in the formation of nouns terminating in the sequence *-ówka (-ów+ka)*, though other univerbated complexes show the word-final sequence *-owiec* (*-ow'+ec*), *-anka* (*-an+ka*), or *-ak*. The

semantic relatedness between multi-word units and the suffixal derivatives is visible in the fact that *-ówka* derivatives "inherit" the grammatical gender and the singular/plural form of nouns which head corresponding NA or AN complexes. The feminine gender of the head noun *szkoła* 'school' in (47a) corresponds to the feminine gender of the noun terminating in *-ówka* in (47a'). Let us also note the plural form of *zimówki* 'winter tyres' in (47c'). Nouns ending in *-ówka* (in 47) and *-ak* (in 48) tend to have a more colloquial flavour than their multi-word equivalents.

(47) a. *szkoła zawodowa* (school vocational) 'vocational school'
a.′ *zawod-ów-k-a* (vocation+ADJZ+NMLZ+NOM.SG) 'vocational school'
b. *telewizja kablowa* (television cable.RA) 'cable TV'
b.′ *kabl-ów-k-a* (cable+ADJZ+NMLZ+NOM.SG) 'cable TV'
c. *opony zimowe* (tyre.PL winter.RA) 'winter tyres'
c.′ *zim-ów-k-i* (winter+ADJZ+NMLZ+NOM.PL) 'winter tyres'

(48) a. *liceum ogólnokształcące* (high_school general_education.RA) 'academic high school'
a.′ *ogólni-ak* (general+NMLZ) 'academic high school'
b. *dożywotnie więzienie* (life_long imprisonment) 'life imprisonment'
b.′ *dożywotni-ak* (life_long+NMLZ) 'life imprisonment; a prisoner sentenced to life imprisonment'

On the other hand, nouns ending in *-owiec* (i.e., *-ow'+ec*) belong to neutral register. They are synonymous to N+A combinations. As is shown in (49), such suffixal derivatives form a large part of specialised vocabulary (e.g., in the terminology concerning types of ships).

(49) a. *statek kablowy* (ship cable.RA) 'cable ship, cable-laying ship'
a.′ *kabl-owi-ec* (cable+ADJZ+NMLZ) 'cable-laying ship'
b. *statek latarniowy* (ship lighthouse.RA) 'lightship'
b.′ *latarni-owi-ec* (light+ADJZ+NMLZ) 'lightship'
c. *statek kołowy* (ship wheel.RA) 'paddle-wheeler, paddle steamer'
c.′ *koł-owi-ec* (wheel+ADJZ+NMLZ) 'paddle-wheeler, paddle steamer'
d. *statek drobnicowy* (ship small_items.RA) 'mixed cargo ship, bulk carrier'
d.′ *drobnic-owi-ec* (small_items+ADJZ+NMLZ) 'mixed cargo ship, bulk carrier'
e. *statek chłodniczy* (ship cooling.RA) 'reefer ship'
e.′ *chłodnic-owi-ec* (cooler+ADJZ+NMLZ) 'reefer ship'
f. *statek parowy* (ship steam.RA) 'steam ship, steamer'
f.′ *par-owi-ec* (steam+ADJZ+NMLZ) 'steam ship, steamer'

It needs to be added, though, that Polish morphologists disagree in their analysis of the suffixal formations listed in (47–49) above. Instead of as-

suming that the nouns in question are derived by attaching *-ka* or *-ec* to a denominal adjective (and relating the resulting noun to a N+A or A+N combination), it is possible to treat those nouns as denominal formations and to identify the suffixes in question as *-ówka* and *-owiec*, for instance, *zawod-ówka* (from *zawód* 'profession, vocation') and *drobnic-owiec* (from *drobnica* 'small items, smalls'). Grzegorczykowa (1982: 45) analyses *parowiec* 'steam ship' (represented as a deadjectival *-ec* derivative, i.e., $[[[par]_N\ ow']_A\ ec]_N$, in 47f') as derived from the noun *para* 'steam' by means of the suffix *-owiec*. Jadacka (2001: 85) treats *kablówka* 'cable television' (in 47b′) as a denominal formation (from the noun *kabel* 'cable'). She perceives the internal complexity of the suffix *-ówka* and represents it as *-(ów)ka*. Admittedly, for some nouns terminating in the sequences *-ówka* or *-owiec*, there are no synonymous N+A or A+N phrasal nouns. There is no (institutionalised) N+RA combination ?*spodnie biodrowe* (trouser.NOM.PL hip.RA) corresponding to the noun *biodrówki* 'hip-huggers, i.e., trousers that begin at the hips.' The noun *parapetówka* 'house warming party' is not fully compositional,[18] and it shows a rather vague connection with the base noun *parapet* 'window-sill.' There are no established expressions ?*zabawa parapetowa* (fun sill.RA) or ?*party parapetowe* (party sill.RA). The noun *żyletkowiec* 'tall and thin block of flats' has no corresponding juxtaposition ?*budynek żyletkowy* (building razor.RA). The noun *nasiadówka* 'talking shop, a meeting which is boring and too long' seems to be a deverbal or denominal formation (related to the verb *nasiedzieć się* 'to sit for too long' or to its zero-derived nominalisation *nasiad*). The four nouns in question are best analysed as containing the suffix *-ówka* attached to the nominal base.[19] Similarly, in the case of the noun *filmowiec* 'film-mak-

[18] Formations such as *żyletkowiec* 'razor-shaped, that is, tall and thin, block of flats' and *parapetówka* 'house-warming party' can be regarded as associative, that is, onomasiological, derivatives, since the nominal bases (i.e., *żyletka* 'razor blade' and *parapet* 'window sill') do not appear as elements of definitions of those suffixal derivatives (Grzegorczykowa and Puzynina 1998: 362; Kardela 2000: 43). Kardela (2000: 70) suggests that such derivatives as *żyletkowiec* 'tall and thin block of flats' and *żubrówka* 'bison grass vodka' exhibit a low degree of analysability. He adopts the distinction between compositionality and analysability from Langacker (1987). While compositionality refers to the intrinsic complexity of a structure, analysability denotes speakers' awareness of the structure and of the contribution that each component makes to the meaning of the whole composite expression (Langacker 1987: 448).

[19] There is a single attestation in NKJP of the N+RA combination *impreza parapetowa* (party sill.RA), yet it does not seem to be an institutionalised juxtaposition. Google searches bring isolated examples of the juxtaposition *spodnie biodrowe* (trouser.NOM.PL hip.RA). The noun *nasiad* is institutionalised in the sense 'place where a hen hatches the eggs.' We can add that the lexeme *nasiadówka* is polysemous. When it denotes a kind of bath which is used to relieve the pain in the lower part of the body, it can be regarded as coined by univerbation, since it is synonymous to the N+RA expression *kąpiel nasiadowa* 'sitz bath.'

er,' it seems appropriate to regard it as derived from the noun *film* 'film' by attaching the suffix *-owiec*, since the N+A expression ?*pracownik filmowy* (employee film.RA), or *pracownik ekipy filmowej* (employee.NOM.SG crew.GEN.SG film.RA.GEN.SG) 'member of a film crew,' has a wider interpretation than the noun *filmowiec* 'film-maker' (which usually denotes a film director or producer).

Another type of "morphological condensation" is exemplified in (50). Polish AN or NA complexes may be replaced by the adjective alone. This operation may be treated as involving only the ellipsis of the head, or as involving two steps: the head ellipsis followed by the adjective-to-noun conversion (see Ohnheiser 2015: 774 for more cross-linguistic examples and discussion).

(50) a. *sklep mięsny* (shop butcher.RA) 'butcher's'
a.′ *mięsny* (meat.RA) 'butcher's'
b. *linia prosta* (line straight) 'straight line'
b.′ *prosta* (straight) 'straight
c. *osobowy pociąg* (passenger.RA train) 'slow local train'
c.′ *osobowy* (passenger.RA) 'slow local train'

Some NA or AN juxtapositions in Polish undergo the operation illustrated in (51), regarded as a kind of back-formation or desuffixation (Szymanek 2010: 245; Jadacka 2001: 88–89).

(51) a. *telefon komórkowy* (telephone cell.RA) 'cell phone, mobile phone'
a.′ *komórka* (cell) 'cell phone, mobile phone'
b. *film dokumentalny* (film documentary) 'documentary'
b.′ *dokument* (document) 'documentary'
c. *szkoła plastyczna* (school visual_arts.RA) 'secondary school of fine arts'
c.′ *plastyk* (visual_artist) 'secondary school of fine arts'

3.3 Summary

Let us recapitulate the preliminary overview of Polish morphological compounds and juxtapositions given above. Polish compounds proper contain a vowel (usually *-o-*) which links two constituents. For some Polish compounds proper, which are comparable to English root compounds, the presence of the vocalic interfix is the only marker of the composition process, for instance, *półk-o-tapczan* (shelf+LV+sofa) 'wall bed.' Other compounds proper involve both the insertion of a vocalic interfix and the attachment of an overt suffix to the right-hand stem,

as in *ryb-o-łów-stw-o* (fish+LV+catch+NMLZ+NOM.SG) 'fishing, fishing industry' (cf. **łówstwo*). Moreover, there are compounds proper in which the right-hand stem changes its syntactic category by means of the so-called paradigmatic formative (i.e., zero-suffix), for example, *dług-o-pis* (long+LV+write+ø) 'ballpen.' Apart from compounds proper, there occur so-called solid compounds (Polish *zrosty*), which may exhibit inflectional endings compound-internally, and juxtapositions. Juxtapositions (Polish *zestawienia*) consist of fully inflected words, yet they have a naming function. Four types of Polish juxtapositions were illustrated above, namely NN combinations consisting of nouns which agree in case, as in *wywiad rzeka* (interview river) 'extended interview,' NN.GEN units such as *dom studenta* (house student.GEN) 'dormitory,' AN complex nominals, for instance, *stara panna* 'old maid,' and NA complex nominals, such as *lokomotywa parowa* (locomotive steam.RA) 'steam locomotive.' Both juxtapositions and morphological compounds can become bases, or can motivate semantically suffixal derivatives. Furthermore, juxtapositions can evolve (over time) into solid compounds or compounds proper.

I will argue in the next chapter that NA/AN, NN, and NN.GEN juxtapositions in Polish exhibit characteristics attributed to phrasal nouns in other languages (as discussed in Chapter 1).

Polish multi-word units as phrasal nouns

In this chapter, I investigate word-like and phrase-like properties of Polish juxtapositions. I examine their semantic transparency, syntactic restrictedness, paradigmatic substitutability, internal cohesion, and visibility to syntactic operations (e.g., coordination or changes in word-order). Below, each type of juxtapositions will be discussed separately, that is, AN/NA combinations in Section 4.1, NN.GEN units in Section 4.2, and coordinate or attributive NN combinations in Section 4.3.

4.1 AN and NA phrasal nouns in Polish

Combinations of adjectives and nouns (in any order) which function as naming units in Polish usually contain relational adjectives, that is, denominal adjectives which can be derived in Polish by means of paradigmatic derivation, namely, the attachment of a zero-suffix, which may cause palatalisation of the stem-final consonant, as in (1a–b), or by means of several overt suffixes, such as *-ski, -cki, -owy, -ny, -any* (see Szymanek 1985, 2010: 79–97) (observe that the final *-i/-y* vowel in the adjectives in (1) is the M.NOM.SG ending).

(1) a. *mys-i* 'relating to a mouse or mice' (from *mysz* 'mouse')
b. *człowiecz-y* 'relating to a human being' (from *człowiek* 'man, human being')
c. *mor-sk-i* 'marine' (from *morze* 'sea')
d. *par-ow-y* 'relating to steam' (from *para* 'steam')
e. *jesien-n-y* 'relating to autumn' (from *jesień* 'autumn')
f. *buracz-an-y* 'relating to beetroots' (from *burak* 'beetroot')

Relational adjectives in Polish, like English relational and collateral adjectives (discussed in Chapter 2), have a fairly general meaning 'relating to N,' which is made more specific in a particular AN or NA complex (and in a larger sentential or situational context). For instance, *parowy* 'steam. RA' in the expression *silnik parowy* 'steam engine' denotes a type of engine which is driven by steam power. The multi-word unit *sauna paro-*

wa (sauna steam.RA) 'steam sauna, Turkish bath' denotes a type of bath (or a building with such a bath) during which users sit in a hot room filled with steam, and then receive a rubdown, massage, or a cold shower.

Relational adjectives differ from qualitative (i.e., qualifying) ones, which in Polish are typically formed by means of the suffixes *-owaty, -aty, -asty, -isty/-ysty*. Qualitative adjectives fall into two semantic classes: similitudinal adjectives paraphrasable as 'resembling N, showing qualitites characteristic of N' (in 2) and possessional adjectives paraphrasable as 'containing N' (in 3).

(2) a. *słoniowaty* 'elephantine' (from *słoń* 'elephant')
b. *workowaty* 'baggy, loose-fitting, or bag-shaped' (from *worek* 'bag')

(3) a. *brodaty* 'bearded' (from *broda* 'beard')
b. *piaszczysty* 'sandy' (from *piasek* 'sand')
c. *żylasty* '(of meat) stringy, sinewy; (of people) having prominent veins, wiry' (from *żyła* 'vein')

Nouns can serve as bases for formally distinct relational adjectives (RA) and qualitative adjectives (QA). For instance, from the lexeme *mgła* 'fog,' we can derive the RA *mgłowy* 'relating to fog' and the QA *mglisty* 'foggy.' Apart from the qualitative adjective *żylasty* (QA) 'stringy, sinewy' (in 3c and 4d), there occurs the relational adjective *żylny* 'venous' in (4c), both derived from the noun *żyła* 'vein.' The noun *muzyka* 'music' gives rise to the RA *muzyczny* 'relating to music, musical' and to the QA *muzykalny* 'gifted in music, musical.' AN or NA complexes which exemplify the usage of the RAs and QAs in question are given in (4).

(4) a. *sygnał mgłowy* (signal fog.RA) 'fog signal'
b. *mglisty dzień* (foggy day) 'foggy day'
c. *cewnik żylny* (catheter vein.RA) 'venous catheter'
d. *żylaste mięso* (stringy meat) 'stringy meat'
e. *szkoła muzyczna* (school music.RA) 'music school'
f. *muzykalne dziecko* (musical child) 'musical child'

The majority of denominal adjectives develop qualitative readings and are ambiguous between the relational and qualifying usage. The word *mysi*, mentioned in (1a), occurs as a RA in the phrase *mysi król* (mouse.RA king) 'king of mice.' However, it can also exhibit the qualitative reading 'similar to mice, e.g. in colour,' for instance, in the phrase *mysi kolor włosów* (mousy colour hair.GEN) 'mousy hair colour,' where it describes a brownish-grey hue. The adjective *kulturalny* 'cultural' is used as a RA 'relating to culture' in the NA complex *program kulturalny* 'cultural programme,' and

as a QA paraphrasable as 'cultured, well-mannered, polite' in the phrase *kulturalny pracownik* 'well-mannered employee.' The abstract noun *kulturalność* can be derived from the QA only; hence, the phrase *kulturalność naszych pracowników* 'politeness of our employees' is acceptable, while the phrase **kulturalność programu* (culturalness program.GEN) is not. The adjective *ludzki* 'human, humane' appears as a RA in (5a) in the expression *zasoby ludzkie* 'human resources' and as a QA paraphrasable as 'humane, caring for others' in (5b). Some differences between the syntactic behaviour of relational adjectives and other (canonical) adjectives were mentioned in Chapter 2, when English AN combinations were discussed. They are also visible when QAs and RAs are contrasted in Polish. As shown in (5c), *ludzki* as a QA is gradable (thus can be preceded by the modifier *bardzo* 'very') and can be used predicatively. This is not possible for the RA *ludzki* 'human,' as demonstrated in (5d).

(5) a. *zasoby ludzkie* (resources human.RA) 'human resources'
b. *ludzki szef* (humane boss) 'humane boss'
c. *Mój szef jest bardzo ludzki.* 'My boss is very humane.'
d. **Zasoby były bardzo ludzkie.*
Intended meaning '?Resources were very human.'

Adjectives which form NA and AN combinations in Polish are not only relational. They may be non-derived, as in (6), deverbal (in 7a), or participial (7b–c).

(6) a. *panda czerwona* (panda red) 'red panda (Ailurus fulgens)'
b. *pancernik mały* (armadillo small) 'dwarf armadillo'
c. *chude mleko* (lean milk) 'skimmed milk, low fat milk'
d. *dzika róża* (wild rose) 'dog rose'

(7) a. *krem odżywczy* (cream nourishing) 'nourishing cream'
b. *krem nawilżający* (cream moisturising) 'moisturising cream'
c. *tłuszcz utwardzony* (fat hydrogenated) 'hydrogenated oil'

When discussing NA and AN complexes in Polish, Cetnarowska et al. (2011a, 2011b), Cetnarowska and Trugman (2012), and Cetnarowska (2013) divide such combinations into three types (in 8), depending on the fixedness of their word order, semantic transparency, and the pre- or post-head position of the adjective.

(8) a. Type A: AN lexical idioms, for instance, *boża krówka* (god.RA cow.DIM) 'ladybird,' *bocianie gniazdo* (stork.RA nest) 'foretop,' *koński ogon* (horse.RA tail) 'ponytail'
b. Type B: NA tight units, for instance, *poczta dyplomatyczna* (post diplomatic) 'diplomatic mail,' *łaźnia parowa* (bath steam.RA) 'steam bath,' *foka szara* (seal grey) 'grey seal'
c. Type C: NA/AN units, for instance, *zimowa kurtka* (winter.RA jacket) / *kurtka zimowa* (jacket winter.RA) 'winter jacket,' *uliczna lampa* (street.RA lamp) / *lampa uliczna* (lamp street.RA) 'street lamp'

Type A, illustrated in (9), contains AN complexes which are semantically non-compositional and are treated by Cetnarowska et al. (2011a, 2011b) as lexical idioms. The combinations in (9a-d) are not hyponyms of their heads, for instance, *boża krówka* does not denote a type of bird, but a small beetle. *Koński ogon* is not a tail but a type of hairstyle. The idiomatic expression *biały kruk* refers not to a raven but to an object which is rare and precious. *Wilcza jagoda* is a type of a plant. It has berries, but its meaning cannot be paraphrased as 'a berry (or a plant with berries) associated with wolves.'

(9) a. *boża krówka* (god.RA cow.DIM) 'ladybird'
b. *koński ogon* (horse.RA tail) 'ponytail'
c. *wilcza jagoda* (wolf. RA berry) 'deadly nightshade, *Atropa belladonna*'
d. *biały kruk* (white raven) 'rare specimen'

The adjective+noun combinations in (9) are not reversible. The movement of the adjective to the post-head position either produces an unacceptable string (as in 10a), or results in the loss of the idiomatic meaning. The NA sequence in (10b) does not denote a type of hairstyle but a type of animal's tail (i.e., the tail of the horse). The NA strings in (10b–c) sound odd. They could potentially be accepted only if they were given a more compositional meaning, for instance, if the expression *kruk biały* in (10d) referred to a type of raven.

(10) a. **krówka boża* (cow.DIM god.RA) unacceptable in the meaning 'ladybird' (cf. 8a)
b. *ogon koński* (tail horse.RA) 'a horse's tail'
c. *??jagoda wilcza* (berry wolf.RA) potentially acceptable in the meaning 'a type of berry associated with wolves'
d. *??kruk biały* (raven white) potentially acceptable in the meaning 'a type of raven with white feathers'

Type B units in (8), referred to as tight units and exemplified further in (11) and (12), show varying degrees of semantic transparency. The NA combination in (11a) is fairly transparent and can be paraphrased as "transportation of passengers." The NA tight unit in (11b) denotes a type of printer, yet it shows some degree of semantic opacity, since extralinguistic knowledge is required to understand the relationship between ink and a printer. The NA combination in (11c) is not a hyponym of its head. It is semantically opaque (although there may be some metaphorical connection postulated between the actual meaning and the meaning predictable on the basis of the constituent structure).

(11) a. *przewozy pasażerskie* (transport passenger.RA) 'passenger transport'
b. *drukarka atramentowa* (printer ink.RA) 'inkjet printer'
c. *opera mydlana* (opera soap.RA) 'soap opera'
d. *pancernik mały* (armadillo small) 'dwarf armadillo'
e. *attaché kulturalny* (attaché cultural) 'cultural attaché'
f. *linia krzywa* (crooked/curved line) 'curve'
g. *aktywność fizyczna* (activity physical) 'physical activity'
h. *teatr dramatyczny* (theatre dramatical) 'dramatical theatre, drama theatre'

The NA combinations in (12) function as fixed terms (as do the expressions in 11), and therefore, they acquire "semantic surplus value" (in addition to their literal meaning). Their appropriate semantic interpretation also requires some extralinguistic knowledge. While the structural (i.e., literal) meaning of the expression in (12a) is 'a ball which shows some kind of relationship to physicians,' its actual meaning includes additional items of information, for instance, that such a ball is large and heavy, and that it is thrown and caught during strength-building exercises. The expression in (12b), *piłka siatkowa* (ball net.RA), denotes either a type of game or a ball used when playing the game. Extralinguistic knowledge specifies the rules of the game, such as the number of the players, the kind of movements which are allowed, or the size and shape of the ball used by players. By looking at the constituents of the tight unit *piłka wodna* 'water polo' in (12c), speakers of Polish can only guess that it is a game played in the water, or a ball used when playing in the water. As in the case of (12b), semantic surplus value of such an NA unit involves information about the special equipment required when playing water polo and the rules of the game.

(12) a. *piłka lekarska* (ball physician.RA) 'medicine ball'
b. *piłka siatkowa* (ball net.RA) 'volleyball'
c. *piłka wodna* (ball water.RA) 'water polo'

The NA expressions given in (11) and (12) above are not normally reversible. In the case of some NA units, the movement of the post-head modifier to the pre-head position results in the loss of the classifying reading of the adjective. While *mały* 'small' has a classifying function in (13a), in (13a′) it apears as a qualifying modifier, attributing the property of smallness to the armadillo. Thus, (13a′) is no longer a fixed term denoting a type of a species (in contrast to 13a). It is a phrase with a descriptive function.[1]

(13) a. *pancernik mały* (armadillo small) 'dwarf armadillo' (=11d)
a.′ *mały pancernik* (small armadillo) 'a small exemplar of an armadillo'
b. *attaché kulturalny* (attaché cultural) 'cultural attaché'
b.′ *kulturalny attaché* (cultural attaché) 'polite/cultured attaché'
c. *linia krzywa* (line crooked/curved) 'curve'
c.′ *krzywa linia* (crooked/curved line) 'a line which has not been drawn straight'

In the case of the NA combinations in (11a), (11b), and (11g) above, changing the order of the modifier and the head does not change the meaning of the adjective (from RA into QA), but the resulting strings in (14a-c) occur much rarer than their NA equivalents. A search in the full NKJP corpus returns 515 hits for the NOM.SG form of the NA unit *przewozy pasażerskie* (transports passenger.RA) in (11a) and 62 hits for the NOM.SG form of the NA string *pasażerskie przewozy* (passenger.RA transports) in (14a). There is also a marked difference between the frequency of the NA order *drukarka atramentowa* (printer ink.RA) – 82 occurrences of the NOM.SG form – and the AN order *atramentowa drukarka* (ink.RA printer) – six instances of the NOM.SG form. The NA order in *aktywność fizyczna* (activity physical) is the expected one (648 occurrences in NKJP), while the AN order *fizyczna aktywność* (physical activity) is rare (eight hits). There are 12 instances of *dramatyczny teatr* (dramatic theatre) (in various case forms) in NKJP, as compared to 676 hits for *teatr dramatyczny* (theatre dramatic).

(14) a. *pasażerskie przewozy* (passenger.RA transports) 'passenger transport'
b. *atramentowa drukarka* (ink.RA printer) 'ink printer'
c. *fizyczna aktywność* (physical activity) 'physical activity'
d. *dramatyczny teatr* (theatre dramatical) 'drammatical theatre, drama theatre'

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[1] The difference between the interpretation of NA and AN strings in (13) corresponds to the distinction between the naming function and the descriptive function of AN strings in Dutch or German, as discussed by, among others, Hüning (2010) and Booij (2009). See, for instance, the ambiguity of *rode wijn* 'red wine' in Dutch, mentioned here in Chapter 1.

However, the pre-head position of the classifying adjectives (as in 14a–d) is fully acceptable and natural when the post-head slot is filled by another classifying adjective, for instance, *autobusowy* 'relating to buses,' or by a genitive phrase, such as *seniorów* 'of senior citizens.'

(15) a. *pasażerskie przewozy autobusowe* (passenger.RA transport.PL bus.RA) 'passenger bus transport'
b. *atramentowa drukarka przenośna* (ink.RA printer portable) 'portable inkjet printer'
c. *fizyczna aktywność seniorów* (physical activity elder.GEN.PL) 'physical activity of senior citizens'
d. *Rosyjski Dramatyczny Teatr Litwy* (Russian dramatic theatre.NOM Lithuania.GEN) 'Russian Dramatic Theatre of Lithuania'

The pre-head position of the adjectives *pasażerski*, *dramatyczny, atramentowy*, or *fizyczny* in (15) does not result in a change of their meaning. They are not reinterpreted as corresponding qualitative adjectives, such as *atramentowy* 'inky; resembling ink in colour' in *atramentowe niebo* 'inky sky' and *fizyczny* 'involving bodily contact' attested in the phrase *bardzo fizyczny styl gry* 'a very physical style of play' (employed in an online article about British soccer players).[2] Consequently, I disagree with the hypothesis formulated by Rutkowski and Progovac (2005) and Rutkowski (2009) that all pre-head adjectives, including those in (15), should be treated as qualifying attributes.

The third type of adjective+noun combinations identified by Cetnarowska et al. (2011a, 2011b) are expressions with so-called migrating adjectives. These are adjectives which can either precede or follow the head, and in both those positions, they exhibit a relational reading and a classifying function, as illustrated in (16). A search within the full corpus of NKJP for the combinations in (16) (in various case forms)[3] brings the following results: *elektroniczny papieros* (electronic cigarette) – 19 instances vs. *papieros elektroniczny* (cigarette electronic) – 15 examples; *skórzany pasek* (leather.RA belt) – 222 examples vs. *pasek skórzany* (belt leather.RA) – 74 hits; *męska koszula* (male shirt) 103 examples vs. *koszula męska* (shirt male) – 121 hits.

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[2] When used as a qualifying attribute, *dramatyczny* can be interpreted as 'dramatic, drastic, tragic,' as in *dramatyczna scena* 'dramatic scene' or *dramatyczne lądowanie* 'tragic landing.'

[3] I also compared the occurrences of the NOM.PL case form of A+N and NA combinations which are illustrated in (17g–h): *policyjne patrole* (police.RA patrol.NOM.PL) – 440 hits vs. *patrole policyjne* (patrol.NOM.PL police.RA) – 493 hits.

The pre- or post-head position of those migrating adjectives is not due to the presence of other classifying or genitive attributes, in contrast to the examples of tight units in (15).[4]

(16) a. *elektroniczny papieros* (electronic cigarette) 'electronic cigarette, e-cigarette'
b. *papieros elektroniczny* (cigarette electronic) 'electronic cigarette, e-cigarette'
c. *skórzany pasek* (leather.RA belt) 'leather belt'
d. *pasek skórzany* (belt leather.RA) 'leather belt'
e. *męska koszula* (male shirt) 'men's shirt'
f. *koszula męska* (shirt male) 'men's shirt'

(17) a. *Elektroniczne* *papierosy* *też* *szkodzą*.
electronic.NOM.PL cigarette.NOM.PL also harm.PRS.3PL
'E-cigarettes are also harmful.'
b. *Czy* *wolno* *używać* *papierosów* *elektronicznych*
if permitted use.INF cigarette.GEN.PL electronic.GEN.PL
na *lotniskach?*
on airport.LOC.PL
'Is it permitted to use e-cigarettes at airports?'
c. *A* *Ty* *nosisz* *taki* *czarny* *skórzany*
and you wear.PRS.2SG such.ACC.SG black.ACC.SG leather.RA.ACC.SG
pasek?
belt.ACC.SG
'And do you wear such a black leather belt?'
d. *Ja* *miałem* *pasek* *skórzany.*
I.NOM have.PST.1SG belt.ACC.SG leather.RA.ACC.SG
'I had a leather belt.'
e. *dżinsy i męska koszula* (jeans and male shirt) '(a pair of) jeans and a men's shirt'
f. *koszula męska – 42 zł* (shirt male – 42 zl) 'men's shirt – 42 zloties'

[4] Szymańska (2000), Tabakowska (2007), Linde-Usiekniewicz (2013), Szumska (2015), Cetnarowska (2014), and Cetnarowska (2015b) discuss non-syntactic factors which may cause classifying adjectives to occur prenominally. These factors include, among others, information structure requirements, stylistic value, and differences in semantic categorisation. In the case of some AN combinations, there may have been some influence of English AN word order on Polish, for instance, *elektroniczny papieros* 'electronic cigarette' and *wirtualna rzeczywistość* 'virtual reality.'

g. *Wzmocniono* *też* *policyjne* *patrole.*
strengthen.PST.IMPRS also police.RA.ACC.PL patrol.ACC.PL
'Police patrols were also boosted.'

h. *Patrole* *policyjne* *pojawiają* *się* *dwa,* *a* *nawet*
patrol.NOM.PL police.RA.NOM.PL appear.PRS.3PL REFL two or even
trzy *razy* *dziennie.*
three time.NOM.PL daily
'Police patrols appear two or even three times a day.'

Cetnarowska and Trugman (2012) observe that migrating adjectives are intersective-subsective. AN/NA combinations containing them are fairly compositional and make reference to transparent classifications whose interpretation does not require encyclopedic knowledge on the part of the speaker of Polish. *Samochód policyjny* (car police.RA) */policyjny samochód* (police.RA car) 'police car' can be contrasted with *samochód wojskowy* 'military vehicle,' *samochód ciężarowy* 'goods vehicle; truck,' *samochód pożarniczy* 'fire truck,' *samochód dostawczy* 'light commercial vehicle,' or *samochód osobowy* 'passenger car.' Similarly, *odzież sportowa* (wear sport.RA) / *sportowa odzież* (sport.RA wear) 'sportswear' can be distinguished from *odzież nocna* 'nightwear,' *odzież ochronna* 'protective clothing,' *odzież robocza* 'work clothing,' *odzież kąpielowa* 'swimwear,' *odzież ciążowa* 'maternity clothing,' *odzież wieczorowa* 'evening wear,' and the like. Along the same lines, *uliczna lampa* (street.RA lamp) / *lampa uliczna* (lamp street.RA) 'street lamp' can be compared, for instance, with *lampa ogrodowa* 'garden lamp,' *lampa stołowa* 'table lamp,' *lampa biurkowa* 'desk lamp,' and *lampa ścienna* 'wall lamp.'

Some stylistic differences can be observed between NA and AN combinations. The post-head position of classifying adjectives often indicates formal register,[5] as pointed out by Cetnarowska (2014) and as shown in (18a). This is not surprising, given that tight units (i.e., nonreversible NA expressions) serve as terms characteristic of specialist texts. The sentence in (18b), containing a RA+N combination, exemplifies a rather informal register. The difference between the register in (18a) and (18b) is signalled by particular syntactic constructions and lexical items. (18b) contains the colloquial word *szef* 'boss.' In (18a), the indications of a formal register are, for instance, the use of the inverted verb-pronoun order and the passive voice.[6]

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[5] However, the correlation between the formal style and NA combinations is difficult to confirm by statistical data from the NKJP corpus, as shown in the next footnote.

[6] (18a) and (18b) are both culled from NKJP. Although (18a) exhibits lexical and syntactic features characteristic of formal style, the extract containing (18a) is marked in the corpus as representing a "quasi-spoken" text type (typ_qmow). It comes from a transcript of the meetings of the Polish Senate. The text from which (18b) was extracted is marked as "journalitic writing" (typ_publ), yet the actual sentence (given above as 18b) forms a part of a spoken utterance quoted by the journalist in his/her article.

(18) a. *Wracał on rowerem z zakupami*
return.PST.3SG.M he.NOM bicycle.INS with shopping.INS.PL
z Ciemiernik i został zatrzymany
from Ciemierniki.GEN and become.PST.3SG.M stop.PTCP.3SG.M
przez samochód policyjny.
by car.ACC.SG police.RA.ACC.SG
'He was coming home on his bicycle with (his) shopping from Ciemierniki and was stopped by a police car.'

b. *Szef musi się znaleźć w domu.*
boss.NOM must.PRS.3SG REFL find.INF in home.LOC.SG
Ma wrócić taksówką, a nie policyjnym samochodem
be.PRS.3SG return.INF taxi.INS.SG and not police.RA.INS.SG car.INS.SG
'The boss must get home. He is to return by taxi, and not in a police car.'

Since it will be argued here that NA and AN juxtapositions are phrasal nouns, it is important to determine whether such combinations exhibit syntactic restrictedness, which is characteristic of phrasal lexemes in other languages (as observed in Chapter 1).

Type A adjective+noun combinations (i.e., lexical idioms) are not reversible. The reversibility of Type B NA complexes (i.e., tight units) is restricted (e.g., the adjective can be moved to the pre-head position when other postmodifiers are present). Type C combinations are more mobile (which is not expected of phrasal nouns). It will be shown below that all those types of AN/NA juxtapositions do exhibit some properties of phrasal nouns.

Phrasal nouns are not interrupted by lexical material, such as modifiers or complements. This is shown for lexical idioms (i.e., Type A combinations) in (19).

(19) a. *boża krówka* (god.RA cow.DIM) 'ladybird'
b. **boża mała krówka* (god.RA little cow.DIM) intended meaning: 'a small ladybird'
c. *koński ogon* (horse.RA tail) 'ponytail'
d. **koński długi ogon* (horse.RA long tail) intended meaning: 'a long ponytail'

The insertion of individual modifiers or complements to the head inside Type B tight units makes the whole combination unacceptable or changes the function of the adjective from a classifying attribute to a qualifying (i.e., descriptive) one.

(20) a. *niedźwiedź brunatny* (bear brown) 'brown bear'
b. **niedźwiedź młody brunatny* (bear young brown)
intended meaning: 'young brown bear (as a species)'
c. (*)*niedźwiedź brunatny na grzbiecie* (bear brown on back)
acceptable only in the QA meaning: 'a bear (of any species) which has brown fur on its back'

(21) a. *foka szara* (seal grey) 'grey seal'
b. (*)*foka szara od kurzu* (seal grey from dust)
acceptable only in the QA meaning: 'a seal (of any species) which is grey because of the dust'
c. *łabędź niemy* (swan mute) 'mute swan'
d. (*)*łabędź niemy od zeszłego tygodnia*
acceptable only in the QA meaning: 'a swan (of any species) which has been mute since last week'
e. *niedźwiedź polarny* (bear polar) 'polar bear'
f. **niedźwiedź północny polarny* (bear northern polar)
intended meaning: 'polar bear from the North Pole'

Constituents of AN/NA juxtapositions (Type C) should not be split by individual modifiers or complements, either.

(22) a. *odzież sportowa* (clothing sport.RA) / *sportowa odzież* (clothing sport.RA) 'sportswear'
b. **sportowa walki odzież* (sport.RA combat.GEN clothing.NOM)
intended meaning: 'clothing related to combat sports' (cf. Polish *sporty walki* (sport.NOM.PL combat.GEN.SG) 'combat sports')
c. *lampa uliczna* (lamp street.RA) / *uliczna lampa* (street.RA lamp) 'street lamp'
d. (*)*główna uliczna lampa* (main street.RA lamp)
intended meaning: 'lamp from the main street'
acceptable in the reading: 'a street lamp which is the main one'
e. ??*uliczne jasne lampy* (street.RA bright lamps) 'bright street lamps'
f. (*)*bawełniane egipskie koszule* (cotton Egyptian shirts)
unacceptable in the meaning: 'shirts from Egyptian cotton' (cf. *koszule z bawełny egipskiej* (shirt.NOM.PL from Egyptian.GEN.SG cotton.GEN.SG))
acceptable in the meaning 'cotton shirts from Egypt'

The phrases in (23), taken from NKJP, seem to indicate that the insertion of modifiers inside NA or AN units is acceptable:

(23) a. *nie mam pantofli, tylko zimowe,*
not have.PRS.1SG slipper.GEN.PL only winter.RA.ACC.PL
ciepłe buciory (NKJP)
warm.ACC.PL clodhopper.ACC.PL
'I don't have any slippers (court shoes), only warm winter clodhoppers.'

b. *Od wielu lat nie kupiłam sobie żadnego*
for many year.GEN.PL not buy.PST.1SG myself no.GEN.SG
zimowego, ciepłego okrycia. (NKJP)
winter.RA.GEN.SG warm.GEN.SG garment.GEN.SG
'For many years I haven't bought any warm winter garment for myself.'

c. *halogenowe, jasne lampy są*
halogen.RA.NOM.PL bright.NOM.PL lamp.NOM.PL be.PRS.3PL
oświetleniem dodatkowym (NKJP)
lighting.INS.SG additional.INS.SG
'bright halogen lamps are additional lighting equipment'

d. *wełniane, ciepłe sweterki* (NKJP)
cotton.RA.NOM.PL warm.NOM.PL sweater.DIM.NOM.PL
'warm cotton sweaters'

There is, however, a different explanation available for the presence of the adjective *ciepłe* 'warm' splitting the AN string *zimowe buciory* 'winter clodhoppers.' The adjectives *zimowe* 'winter.RA' and *ciepłe* 'warm' can be regarded as parallel modifiers[7] of the head noun *buciory* 'clodhoppers' in (23a). This is a case of asyndetic coordination, that is, a type of coordination in which the coordinating conjunction is absent, although it could be added (if required), for instance, *zimowe i ciepłe buciory* (winter.RA and warm clodhoppers).[8] Another instance of asyndetic coordination of adjectives is provided in (24), where the head noun *tkanina* 'fabric' is followed by two adjectival modifiers (or where the NA unit *tkanina wełniana* 'woollen fabric' is followed by the adjective *cienka* 'thin,' added as a kind of afterthought or an appositive postmodifier).

[7] The difference between hierarchical and non-hierarchical (i.e., parallel) modification is discussed (on the basis of Spanish data) by Alexiadou et al. (2007: 322–323). They argue that in the case of parallel adjectival modifiers, each adjective modifies the noun directly and constitutes a separate phonological phrase.

[8] The AN strings *zimowe buciory* (winter.RA clodhoppers) and *halogenowe lampy* (halogen.RA lamps) are not constituents in (23a) and (23c), respectively; hence, they are not phrasal lexemes in these cases.

(24) *Kamlot –* *tkanina* *wełniana,* *cienka*
camlet.NOM.SG fabric.NOM.SG woollen.NOM.SG thin.NOM.SG
'Camlet – a thin woollen fabric'

Willim (2000a, 2000b) employs the notion of asyndetic coordination to account for the sequences of Polish attributive adjectives whose order violates the hierarchy of adjectives, proposed for English by Quirk et al. (1972) and postulated as cross-linguistically valid by Sproat and Shih (1991) and Cinque (1995). According to the hierarchy, stated as Possessive > Cardinal > Ordinal > Quality > Size > Shape > Colour > Nationality by Cinque (1995: 96), modifiers denoting qualities (i.e., "subjective" modifiers) follow possessives and numerals but are predicted to precede adjectives denoting objective properties (e.g., size, shape and colour), as indicated by the English noun phrases *my two lovely blue skirts*, *a comfortable old cotton shirt*, *small green Chinese vases*, and *nice strong coffee*. Willim (2000a) shows that the word order within the Polish noun phrases in (25a–b) violates the cross-linguistic hierarchy of adjectives, since the subjective (i.e., quality) modifier *delikatny* 'delicate' follows the modifier denoting colour in (25a), while the quality adjective *dobre* 'good, tasteful' comes after the adjective denoting size in (25b). She regards the adjectives in (25) as coordinate modifiers, rather than hierarchically ordered ones. She also points out that the word order in Polish NPs shows considerable freedom and is sensitive to pragmatic (i.e., information structure) factors, as noted also by Topolińska (1984), Gębka-Wolak (2000) and Nagórko (2010: 297) (and as was observed above in this chapter, with reference to NA or AN order). A quick search in the NKJP corpus provides examples in (26), in which the adjective order is opposite to the one in (25a) and agrees with the prediction of Cinque's hierarchy.

(25) a. *srebrne delikatne klapki* (silver delicate sandals) 'delicate silver sandals'
b. *małe dobre wnętrze* (small good interior) 'a tasteful small home'

(26) a. *delikatne srebrne listowie* (delicate silver foliage) 'delicate silver foliage'
b. *delikatna srebrna oprawka okularów* (delicate silver frame glasses.GEN) 'delicate silver glass frame'

Let us now consider another batch of examples which could be treated as suggesting that the unity of NA/AN juxtapositions can easily be interrupted.

(27) a. *koszula męska* (shirt male) 'men's shirt'
b. *koszula bawełniana męska* (shirt cotton.RA male) 'cotton men's shirt'
c. *bawełniane skarpety* (cotton.RA socks) 'cotton socks'
d. *bawełniane męskie skarpety* (cotton.RA male socks) 'cotton men's socks, cotton socks for men'
e. *odzież ochronna* (clothing protective) 'protective clothing'
f. *odzież robocza ochronna* (clothing work.RA protective) 'protective work clothing'

In my opinion, what the strings in (27) indicate is the recursivity of adjective+noun combinations in Polish. NA or AN phrasal lexemes can become complex heads for larger phrasal lexemes.

(28) a. *męskie skarpety* (male socks) 'men's socks'
b. [*bawełniane* [*męskie skarpety*]] (cotton.RA male socks) 'cotton men's socks'
c. *odzież ochronna* (clothing protective) 'protective clothing'
d. [[*odzież ochronna*] *robocza*] (clothing protective work.RA) 'protective work clothing'

Although recursion is regarded by some scholars (e.g., Matthews 1991) as a property of syntactic constructions, it is exhibited by English NN compounds, as was pointed out in Chapter 2. The recursivity of the process of phrasal lexeme formation in Polish is reminiscent of the recursivity of endocentric NN compounds in English.

Further examples of recursivity of AN/NA complexes, provided in (15) above, are repeated in (29), with their internal structure indicated. Examples (29c) and (29d) demonstrate that AN or NA combinations can become complex heads (Ns) for NN.GEN phrasal lexemes.[9]

(29) a. [*pasażerskie* [*przewozy autobusowe*]] (passenger.RA transport.PL bus.RA) 'passenger bus transport'
b. [[*atramentowa drukarka*] *przenośna*]
or: [*atramentowa* [*drukarka przenośna*]]
(ink.RA printer portable) 'portable ink-jet printer'
c. [[*fizyczna aktywność*] *seniorów*] (physical activity elder.GEN.PL) 'physical activity of senior citizens'
d. [[*aktywność fizyczna*] *seniorów*] (activity physical elder.GEN.PL) 'physical activity of senior citizens'

[9] N+PP phrasal lexemes can also take RAs as modifiers, for instance, [[*guma* [*do żucia*]] *miętowa*] (gum for chewing mint.RA) 'mint chewing gum,' [[*krem* [*na dzień*]] *nawilżający*] (cream for day moisturising) 'moisturising day cream,' or [*nawilżający* [[*krem* [*na dzień*]]] (moisturising cream for day) 'moisturising day cream.'

Phrasal lexemes are expected to show no paradigmatic commutability. In other words, the replacement of a constituent of a phrasal lexeme by another word (e.g., its synonym) should give rise to an unacceptable unit or loss of idiomaticity. This claim can be substantiated for AN lexical idioms, and for some NA expressions. The replacement of *paszcza* 'jaw' in *lwia paszcza* (lion.RA jaw) 'snapdragon' by its synonym *pysk* 'muzzle' results in a noun phrase with a descriptive reading 'the muzzle of some lion'. The idiomaticity is lost also when the modifying adjective *lwia* (lion.RA) is replaced by *tygrysia* (tiger.RA) in (30b). Similarly, the replacement of the adjective *brunatny* 'brown' by its synonym *brązowy* 'brown, bronze' affects the meaning of the resulting NA expression. The NA tight unit in (31a) is a fixed term, while the one in (31b) is not.

(30) a. *lwia paszcza* (lion.RA jaw) 'snapdragon'
b. *lwi pysk* (lion.RA muzzle) 'lion's muzzle'
c. *tygrysia paszcza* (tiger.RA jaw) 'tiger's jaw'

(31) a. *niedźwiedź brunatny* (bear brown) 'brown bear'
b. *niedźwiedź brązowy* (bear brown/bronze) 'a bear with brown fur'

It could be argued that elements of AN/NA complexes are paradigmatically commutable since the replacement of the modifier or the head in the combination *odzież ochronna* 'protective clothing' does not produce ill-formed strings. However, this is so because both *odzież* 'clothing, wear' and *ochronny* 'protective' function as constituents of numerous fixed expressions (i.e., numerous terms), as shown in (32) and (33).

(32) a. *odzież ochronna* (clothing protective) 'protective clothing'
b. *odzież rekreacyjna* (clothing recreational) 'lounge wear'
c. *odzież sportowa* (clothing sport.RA) 'sportswear'
d. *odzież modelująca* (clothing modelling) 'shapewear'
e. *odzież funkcjonalna* (clothing functional) 'functional clothing'
f. *odzież galowa* (clothing formal) 'formal wear'
g. *odzież wieczorowa* (clothing evening.RA) 'evening wear'

(33) a. *odzież ochronna* (clothing protective) 'protective clothing'
b. *kask ochronny* (helmet protective) 'protective helmet'
c. *buty ochronne* (shoes protective) 'protective shoes'
d. *rękawice ochronne* (gloves protective) 'protective gloves'
e. *okulary ochronne* (glasses protective) 'goggles'

Consequently, coordination of heads or modifiers of AN/NA (Type C) complexes is possible, as shown in (34).[10]

(34) a. *odzież rekreacyjna lub sportowa* (clothing recreational or sport.RA)
'loungewear or sportswear'
b. *rękawice i kask ochronny* (gloves and helmet protective)
'protective gloves and helmet'
c. *lampy halogenowe oraz ledowe* (lamps halogen.RA and LED.RA)
'halogen and LED lamps'
d. *uliczne lub ogrodowe lampy* (street.RA or garden.RA lamps)
'street or garden lamps'

It was shown in Chapter 3 that nouns which are non-head constituents of Polish morphological compounds are not accessible to anaphoric elements, such as pronouns. A similar conclusion can be drawn when we consider phrasal lexemes consisting of a relational adjective and a head noun. The base of the relational adjective in the AN lexical idioms in (35) and in the NA units in (36) cannot act as an antecedent for the personal pronoun *go* 'him/it.'

(35) a. *Podoba* *mi* *się* *lwia*$_i$ *paszcza*,
please.PRS.3SG me.DAT REFL lion$_i$.RA.NOM.SG jaw.NOM.SG
ale *się* *go*$_{*i}$ *boję*.
but REFL him$_{*i}$ fear.PRS.1SG
'I like snapdragon (lit. lion's jaw) but I am afraid of him/it (*go* 'him/it' is not coreferential with *lew* 'lion').'
b. *Wylewane* *przez* *ciebie* *krokodyle*$_i$ *łzy*
shed.PTCP.IPF.NOM.PL by you.GEN crocodile$_i$.RA.NOM.PL tears.NOM.PL
wcale *go*$_{*i}$ *nie* *przekonały*.
at_all him/it$_{*i}$ not convince.PST.3PL
'The crocodile tears that you shed didn't convince him/it.' (*go* 'him/it' is not coreferential with *krokodyl* 'crocodile').'

(36) a. *Armia* *Krajowa* *broniła* *go*
Army.NOM.SG Country$_i$.RA.NOM.SG defend.PST.3SG him/it$_{*i}$
przed *okupantami*.
from occupier.INS.PL
'Home Army defended him/it against the occupiers.' (*go* 'him/it' is not coreferential with *kraj* 'country')

[10] Willim (2001: 85) regards coordination of non-heads of NA/AN combinations as indicative of head ellipsis, which is characteristic of syntactic objects (but see the discussion of coordination of English compounds in Chapter 2). She also gives the example of head ellipsis (in the case of NA complexes) in discourse, for example, *Jaki kupiłeś ekran?* 'What screen did you buy?' *Telewizyjny* 'A television (screen).'

b. *Jest* *żołnierzem* *zawodowym,* *choć*
be.PRS.3SG soldier.INS.SG profession$_i$.RA.INS.SG though
go$_{*i}$ *nie* *cierpi.*
him/it.GEN not stand.PRS.3SG
'He is a professional soldier, though he cannot stand it (go 'him/it' is not coreferential with *zawód* 'profession').

However, Cetnarowska (2016: 98) provides examples of felicitous outbound anaphora, quoted here in (37–39).

(37) *Które* *preparaty* *magnezowe*$_i$ *zawierają*
which preparation.NOM.PL magnesium.RA.NOM.PL contain.PRS.3PL
najwyższą *jego*$_i$ *dawkę?*
highest his/its dose.ACC.SG
'Which magnesium$_i$ supplements contain its$_i$ highest dose?'

(38) *Dla mnie* *ryż* *bez* *sosu* *krewetkowego*$_j$,
for me rice.NOM.SG without sauce.GEN.SG prawn.RA.GEN.SG
jestem *na nie*$_j$ *uczulona.*
be.PRS.1SG on them.ACC allergic.NOM.SG
'Rice without any prawn$_j$ sauce for me, I'm allergic to them$_j$ (i.e. to prawns).'

(39) *Kompot* *śliwkowy*$_k$ *to* *prawdziwa* *poezja.*
kompot.NOM.SG plum.RA.NOM.SG COP real poetry.NOM.SG
Uwielbiam *ich*$_k$ *słodki* *dymny* *smak*
adore.PRS.1SG their sweet smoky taste.ACC.SG
'The prune$_k$ kompot is real poetry. I adore their$_k$ (= dried plums) sweet smoky taste.'

These examples demonstrate that in the case of some semantically transparent N+RA or RA+N combinations, when an appropriate sentential context is provided, the nominal base is visible to anaphoric elements (e.g., to pronouns). Apart from being semantically transparent, such N+RA (or RA+N) complexes are synonymous with the N+PP combinations occurring in sentences (40–43). It seems that when hearing sentences (37–39), speakers of Polish associate the RA+N complexes with (i.e., replace them by) the noun phrases in (40–43), namely, *preparaty z magnezem* 'preparations/supplements with magnesium,' *sos z krewetkami* 'sauce with prawns,' and *kompot ze śliwek* 'kompot from plums.' This would account for the choice of the plural pronoun *nie* 'them.GEN' and *ich* 'their' (instead of the singular pronoun) in (38) and (39).

(40) *Które* *preparaty* *z* *magnezem*$_i$ *zawierają*
which preparation.NOM.PL with magnesium.INS.SG contain.PRS.3PL
najwyższą *jego*$_i$ *dawkę?*
highest his/its dose.ACC.SG
'Which magnesium$_i$ supplements contain its$_i$ highest dose?'

(41) *Dla mnie* *ryż* *bez* *sosu* *z* *krewetek*$_j$,
for me.GEN rice.NOM.SG without sauce.GEN.SG from prawn.GEN.PL
ponieważ *jestem* *na nie*$_j$ *uczulona*.
because be.PRS.1SG on them.ACC allergic.NOM.SG
'Rice without any prawn$_j$ sauce for me, because I am allergic to them$_j$ (i.e. to prawns).'

(42) *Kompot* *ze* *śliwek*$_k$ *to* *prawdziwa* *poezja.*
kompot.NOM.SG from plum.GEN.PL TOP real.NOM.SG poetry.NOM.SG
Uwielbiam *ich*$_k$ *słodki* *dymny* *smak*
adore.PRS.1SG their sweet.ACC.SG smoky.ACC.SG taste.ACC.SG
'The prune$_k$ kompot is real poetry. I adore their$_k$ (= dried plums) sweet smoky taste'

As was mentioned in Chapter 2, the anaphoric islandhood of nouns which are modifiers in English NN compounds is discussed in detail by Ward et al. (1991). Let us repeat some examples of the visibility of such nouns to anaphoric expressions that were provided by the authors.

(43) a. For a *syntax*$_i$ slot I'd rather see someone with more extensive coursework in *it*$_i$.
b. Although casual *cocaine*$_i$ use is down, the number of people using *it*$_i$ routinely has increased.

According to Ward et al. (1991: 466), the felicity of sentences such as those in (43) is determined by the productivity of the relationship "between an anaphor's antecedent and the lexical item containing that antecedent." The NN compound *syntax slot* can be paraphrased using Levi's (1978) predicate FOR (i.e., a slot for syntax), which is represented by many NN complex nominals in English. The combination *cocaine use*, in turn, exemplifies a predicate-argument schema (see Jackendoff 2010, 2016), which represents the internal structure of numerous synthetic compounds (including the compound *cat-lover* mentioned in Chapter 2).

The Polish relational adjectives occurring in (37–39) can be regarded as having the ablative function (Kallas 1998; Szymanek 2010: 90), since they denote the origin of a substance or its basic ingredient. The RA+N complexes *preparaty magnezowe* 'magnesium supplements,' *kompot śliwkowy*

'plum kompot,' and sos *krewetkowy* 'prawn sauce' can be paraphrased using Levi's HAVE predicate – N2 HAVE N1,[11] which is a fairly productive pattern.

In conclusion, although NA and AN combinations in Polish (including N+RA and RA+N complexes) have internal phrasal structure and lack features of morphological compounds (such as the property of being a single orthographic and prosodic word), they show some properties attributed to phrasal lexemes cross-linguistically (and exhibited by phrasal nouns in English).

4.2 Noun-Noun.GEN combinations as phrasal lexemes

This section will be devoted to compound-like combinations which consist of a head noun followed by its genitive attribute. Some examples were given in Chapter 3, for instance, *prawo jazdy* (licence driving.GEN) 'driving licence,' *dom dziecka* (house child.GEN) 'children's home,' *pies ogrodnika* (dog gardener.GEN) 'dog in the manger,' and *prawo pracy* (law work.GEN) 'labour law.' Further examples are provided in (44) and (45):

(44) a. *dawca organów* (donor organ.GEN.PL) 'organ donor'
b. *przetwórstwo ryb* (processing fish.GEN.PL) 'fish processing'
c. *hodowca drobiu* (breeder poultry.GEN.SG) 'poultry breeder, poultry farmer'

(45) a. *dzień ojca* (day father.GEN.SG) 'Father's Day'
b. *Święto Pracy* (holiday work.GEN.SG) 'Labour Day'
c. *mundur strażaka* (uniform firefighter.GEN.SG) 'firefighter uniform'
d. *nerwica serca* (neurosis heart.GEN.SG) 'cardiac neurosis, cardioneurosis'
e. *Izba Lordów* (chamber lord.GEN.PL) 'House of Lords'

The NN.GEN complexes in (44) are headed by deverbal nouns and, as their translation into English indicates, correspond to English synthetic compounds. The heads of the combinations in (45) are not argument-taking nouns (as defined by Bauer et al. 2013: 472), that is, they are neither deverbal formations nor relational nouns.[12] The NN.GEN complexes in (45) can be regarded as equivalents of attributive compounds. This is why some of them are translated into English as genitive compounds.

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[11] The paraphrases would be as follows: 'the supplements have magnesium,' 'the kompot has plums,' and 'the sauce has prawns.'

[12] Other NN.GEN can be headed by relational nouns, for instance, *Ojciec Kościoła* (father church.GEN.SG) 'Church Father,' *matka rodu* (mother family.GEN.SG) 'matriarch.'

The Polish NN.GEN combinations in (44–45) show varying degrees of semantic compositionality. Some of them are fairly transparent semantically, such as those in (44). On the other hand, the proper understanding of the NN.GEN complex in (45e) requires extralinguistic knowledge, namely, the knowledge of the parliamentary system in the United Kingdom. Semantic surplus is visible in the interpretation of the fixed term *Święto Pracy* 'Labour Day' in (45b), where the appropriate cultural background is useful in describing the ways in which this holiday is, or used to be, celebrated in Eastern and Western Europe. There exist NN.GEN combinations which are semantically opaque, for instance, *pies ogrodnika* (dog gardener.GEN) 'dog in the manger,' *pięta Achillesa* (heel Achilles.GEN) 'Achilles' heel, vulnerable spot,' and *jabłko orientu* (apple Orient.GEN) 'persimmon, sharon.'

The examples in (46–48) could be construed as indicating that NN.GEN combinations are full syntactic phrases, since their non-head constituents take individual (i.e., independent) adjectival modifiers (or nominal complements). However, I will interpret the data as showing that the non-head constituent (i.e., the genitive attribute) can itself be a phrasal lexeme. It can be a N+RA unit (as in 46b–c) or a N+N.GEN unit (46d).

(46) a. *prawo własności* (right.NOM property.GEN) 'right to property, ownership right'
b. *prawo własności intelektualnej* (right.NOM property.GEN intellectual.GEN) 'intellectual property rights (IPR)'
c. *prawo własności przemysłowej* (right.NOM property.GEN industrial.GEN) 'industrial property right'
d. *prawo własności nieruchomości* (right.NOM property.GEN real_estate.GEN) 'the title to a real estate'

(47) a. *hodowla ryb* (breeding.NOM fish.GEN.PL) 'fish farming'
b. *hodowla ryb słonowodnych* (breeding.NOM fish.GEN.PL saltwater.RA.GEN.PL) 'saltwater fish farming'

(48) a. *Święto Poświęcenia* (festival.NOM dedication.GEN.SG) 'Dedication Feast (=Hanukkah)'
b. *Święto Poświęcenia Świątyni* (festival.NOM dedication.GEN.SG temple.GEN.SG) 'Feast of Dedication of the Temple (= Hanukkah)'

The examples in (46d) and (48b) illustrate the possibility of recursion of the NN.GEN phrasal lexeme formation, since the genitive attribute can itself be a N+N.GEN combination.

As in the case of NA or AN phrasal lexemes, coordination is attested in the case of NN.GEN compound-like combinations. The strings in (49)

exemplify coordination of non-head elements (i.e., genitive attributes), whereas the data in (50) show coordination of heads.

(49) a. *hodowla bydła i koni* (breeding.NOM.SG cattle.GEN.SG and horse.GEN.PL) 'cattle and horse breeding'
b. *hurtownia kosmetyków i chemii gospodarczej* (wholesaler's.NOM.SG cosmetic.GEN.PL and chemistry.GEN.SG household.RA.GEN.SG) 'wholesaler of cosmetics and household chemicals'

(50) a. *hodowla i ubój indyka* (breeding.NOM.SG and slaugher.NOM.SG turkey.GEN.SG) 'breeding and slaughter of turkey'
b. *dawcy i biorcy szpiku* (donor.NOM.PL and recipient.NOM.PL marrow.GEN.SG) 'donors and recipients of bone marrow'

A property which brings Polish NN.GEN complexes close to Polish morphological compounds (and to English NN compounds) is the non-referentiality of their non-head constituents, which is illustrated in (51) and (52). The sentences in (51a) and (52a) contain NN.GEN phrasal nouns, whose non-head consituents cannot be coreferential with the relative pronoun *który* 'which/who.' (The sentence in (52a) is not acceptable because the noun *ubój* 'slaughter' is normally followed by a generic noun, in the singular or plural form.) Coreferentiality of the relative pronoun with the genitive attribute is possible in (51b) and (52b), because those sentences contain N+NP.GEN syntactic objects (i.e., noun phrases).

(51) a. *Kupiliśmy* *mundur*$_i$ *strażaka*$_j$, *który*$_{i/*j}$ *tak* *bardzo* *się* *dzieciom* *podobał.*
buy.PST.1PL uniform.ACC.SG firefighter.GEN.SG which/who so much REFL child.DAT.PL please.PST.3SG
'We bought the firefighter uniform which our children liked so much.' (*który* 'which/who' refers to the uniform, and not to the firefighter.)
b. *Widziałam* *zdjęcie* *strażaka*$_j$, *który*$_i$ *pojechał* *do* *Szwecji* *gasić* *pożary* *leśne.*
see.PST.1SG photo.ACC.SG firefighter.GEN.SG who/which.NOM.SG go.PST.3SG to Sweden put_out.INF fire.ACC.PL forest.RA.ACC.PL
'I saw a photo of a/the firefighter who went to Sweden to fight wildfires.'

(52) a. **Ubój* *indyka*$_j$, *który*$_i$ *biegał* *po* *naszym* *podwórku*
slaughter.NOM.SG turkey.GEN.SG which/who.NOM.SG run.IPF.PST.3SG around our.LOC.SG backyard.LOC.SG
the intended meaning: 'the slaughtering of the turkey which was running around our backyard'

b. *zastrzelenie* *trzech* *psów*$_i$, *które*$_i$ *pogryzły*
killing.NOM.SG three.GEN.PL dog.GEN.PL which.NOM.PL bite.PST.3PL
naszego *wnuka*
our.ACC.SG grandson.ACC.SG
'the killing of those three dogs which bit our grandson'

The addition of the demonstrative determiner makes the genitive attribute referential, and so changes the NN.GEN compound-like combination in (53a) into a canonical noun phrase in (53b).

(53) a. *dom studenta* (house.NOM student.GEN) 'dormitory'
b. *dom tego studenta* (house.NOM this.GEN student.GEN) 'a/the house of this student, i.e., a house which belongs to the student'

The genitive constituent of the phrasal noun in (53a) is not referential, so it cannot act as an antecedent for the personal pronoun *on* 'he' in (54).

(54) *Wynajęliśmy* *w Katowicach* *pokój* *w* *domu* *studenta*$_i$,
rent.PST.1PL in Katowice.LOC.PL room.ACC.SG in house.LOC.SG student.GEN.SG
ale *on*$_{*i}$ *się* *z* *nami* *nie* *spotkał*.
but he.NOM REFL with us.INS not meet.PST.3SG
'We rented a room in a dormitory (lit. student's house) in Katowice, but he didn't meet us.' (*on* 'he' cannot be referential with *student* 'student'.)

Furthermore, the non-referentiality of the genitive attribute in NN.GEN complexes is signalled in (55) by a possible replacement of some NN.GEN phrasal nouns by synonymous N+RA units (for more examples, see Cetnarowska et al. 2011b).[13] As was mentioned in the previous section, the nominal base of a relational adjective is not normally visible to anaphoric elements.

(55) a. *dom studenta* (house.NOM student.GEN) 'student's house; dormitory'
a.′ *dom studencki* (house.NOM student.RA.NOM) 'student's house; dormitory'
b. *hotel asystenta* (house.NOM teaching_assistant.GEN) 'accommodation for university junior staff'
b.′ *hotel asystencki* (house.NOM teaching_assistant.RA.NOM) 'accommodation for university junior staff'

[13] Clasmeier and Hennecke (to appear) discuss the replacement of NA or AN constructions (in Polish and in French) by equivalent constructions on the basis of data from the Parasol Corpus. The coexisting constructions (synonymous to the relational adjective constructions) which are taken into consideration by Clasmeier and Hennecke (to appear) include NN.GEN complexes, N-PREP-N combinations and the univerbation strategy.

c. *hurtownia ryb* (wholesaler's.NOM fish.GEN.PL) 'fish wholesale outlet'
c.′ *hurtownia rybna* (wholesaler's.NOM fish.RA.NOM) 'fish wholesale outlet'
d. *mundur strażaka* (uniform.NOM firefighter.GEN.SG) 'firefighter uniform'
d.′ *mundur strażacki* (uniform.NOM firefighter.RA.NOM) 'firefighter uniform'

Another difference between NN.GEN phrasal nouns and syntactic N+NP.GEN strings is the impossibility of word order change in phrasal nouns. The genitive noun in (56) cannot be moved to the pre-head position, since it is non-referential (as observed by Migdalski 2003; see also Cetnarowska 2014 and Cegłowski 2017) and since it functions as a constituent of a phrasal noun. In contrast, the genitive attribute in (57) can be shifted to the pre-head position, as it is a part of a syntactic object, and word order in Polish noun phrases is fairly flexible.[14]

(56) a. *prawa człowieka* (right.NOM.PL human.GEN.SG) 'human rights'
b. **człowieka prawa* (human.GEN.SG right.NOM.PL) intended meaning: 'human rights'

(57) a. *prawo tego człowieka do obrony własnej*
right.NOM.SG this.GEN.SG man.GEN.SG to defence.GEN.SG own.GEN.SG
'this man's right of self-defence'
b. *tego człowieka prawo do obrony własnej*
this.GEN.SG man.GEN.SG right.NOM.SG to defence.GEN.SG own.GEN.SG
'this man's right of self-defence'

Both (58b) and (59b) are unacceptable, since neither in phrasal nouns nor in regular noun phrases can the genitive attribute with the object-type reading occupy a pre-head position.

(58) a. *ubój indyka* (slaugher.NOM.SG turkey.GEN.SG) 'turkey slaughter'
b. **indyka ubój* (turkey.GEN.SG slaugher.NOM.SG) 'turkey slaughter'

(59) a. *zastrzelenie trzech psów* (killing.NOM.SG three.GEN.PL dog.GEN.PL)
'the killing of three dogs'
b. **trzech psów zastrzelenie* (three.GEN.PL dog.GEN.PL killing.NOM.SG)
intended meaning: 'the killing of three dogs'

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[14] The word order in (57b) is possible but non-canonical (see Gębka-Wolak 2000: 124) and not as common as the order in (57a). Cegłowski (2017) investigates fronting and extraction of genitive complements in Polish noun phrases. He concludes, on the basis of acceptability judgments from a large-scale questionnaire study, that extraction of genitive complements is not readily acceptable by native speakers of Polish.

In the next section, NN complexes will be discussed whose constituents agree in case. They may be either coordinate or attributive compound-like combinations.

4.3 NN phrasal lexemes whose constituents agree in case

Let us first look at coordinate juxtapositions, in which two constituents have an equal (or nearly equal) semantic status, and then move on to attributive juxtapositions.

As mentioned in Chapter 3, according to prescriptive sources, such as Karpowicz (2009: 102), coordinate juxtapositions should be hyphenated. In this respect, they resemble morphological compound adjectives. In Chapter 3, coordinate phrasal nouns were exemplified by such NN complexes as *kierowca-dostawca* (driver deliverer) 'delivery driver,' *kurs-konferencja* (course conference) 'training conference,' *murarz-tynkarz* (bricklayer plasterer) 'bricklayer plasterer,' and *zegarek-bransoletka* (watch bracelet) 'bracelet-watch; watch with a bracelet.' Further examples are provided in (60).

(60) a. *aktor-reżyser* (actor director) 'actor-director'
b. *barman-barista* (bartender barista) 'bartender and barista'
c. *szampon-odżywka* (shampoo conditioner) '2-in-1 shampoo and conditioner'
d. *torba-worek* (bag sack) 'hobo bag, a woman's large shoulder bag with a soft body'
e. *krem-żel* (cream gel) 'cream gel'
f. *kino-teatr* (cinema theatre) 'nickelodeon theatre, movie theatre'
g. *ginekolog-endokrynolog* (gynaecologist endocrinologist) 'gynaecologist and endocrinologist'
h. *aktor-polityk* (actor politician) 'actor and politician'
i. *półka-tapczan* (shelf sofa) 'wall bed'
j. *kupno-sprzedaż* (purchase sale) 'purchase-sale' (e.g., *umowa kupna-sprzedaży* 'purchase and sale agreement')

The coordinate juxtapositions mentioned above are semantically transparent, though some extralinguistic knowledge may be required to interpret them properly. Without this type of knowledge, it would be difficult to picture the object denoted by the combination of *półka* 'shelf' and *tapczan* 'convertible sofa,' that is, *półka-tapczan* 'wall bed.'

The juxtapositions in (60) represent multifunctional compound-like units which denote a person who is both X and Y (e.g., both an actor and a director), an entity which performs two functions (e.g., a shampoo and

a conditioner), or an object which has properties of two other entities (a woman's handbag and a sack). They consist of two unmodified nouns. It is possible to come across such combinations where one of the constituents has its own modifier or complement, as in (61). The data in (61) will not be interpreted here as demonstrating that coordinate NN juxtapositions lack lexical integrity. We can conlude, instead, that phrasal nouns can serve as constituents of coordinate combinations. These constituents may represent the N+RA construction, for instance, *lekarz rodzinny* (physician family.RA) 'general practitioner,' or NN.GEN construction, for instance, *konstruktorki samolotów* (female_designer.NOM.PL airplane.GEN.PL) 'female aircraft designers.'

(61) a. *internista-lekarz rodzinny* (internist physician family.RA)
'internist and general practitioner'
b. *konstruktor-pilot szybowcowy* (designer pilot glider.RA)
'designer and pilot of a glider'
c. *pilotki konstruktorki samolotów* (female_pilot.NOM.PL female_designer.NOM.PL airplane.GEN.PL) 'female pilots and female aircraft designers'

Recursion of NN coordinate juxtapositions is attested (as in 62), though it does not seem to be frequent.[15]

(62) a. *kelner-barman-ochroniarz* (waiter bartender bodyguard) 'waiter, bartender and bodyguard' (NKJP)
b. *aktorka-piosenkarka-tancerka* (actress female_singer female_dancer) 'actress, female singer and dancer' (Kallas 1980: 44)

Some coordinate NN combinations are reversible. Often one of the potential word orders is conventionalised, and therefore more common than the other order. A search in the NKJP corpus reveals that the phrasal noun *barman-kelner* (bartender waiter), in all its case forms, has more attestations than the phrasal noun *kelner-barman* (waiter bartender). There are no occurrences of the NN combination *posadzkarz-glazurnik* (floor_layer wall_tiler) in the NKJP corpus (see 63d), in contrast to *glazurnik-posadzkarz* (wall_tiler floor_layer), yet one can come across both word orders during Google searches, as shown in (63e–f).

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[15] A search in NKJP shows that recursive coordinate juxtapostions are less common than syntactically coordinated NPs. Syntactic coordination is illustrated by the following phrases: *Hanka Ordonówna (1902–1950), aktorka, piosenkarka, tancerka, poetka* 'Hanka Ordonówna (1902–1950), an actress, female singer, dancer, poet'; *Aliana Lohan (ur. 22 grudnia 1993) – amerykańska aktorka, piosenkarka i modelka* 'Aliana Lohan (born 22nd December 1993) – an American actress, female singer and model.'

(63) a. *barman-kelner* (bartender waiter) – 85 hits in NKJP
b. *kelner-barman* (waiter bartender) – 36 hits
c. *glazurnik-posadzkarz* (wall_tiler – floor_layer) – 8 occurrences
d. *posadzkarz-glazurnik* (floor_layer – wall_tiler) – 0 occurrences in NKJP
e. *w pracy* *na stanowisku* *glazurnik-* *posadzkarz*
in work.LOC.SG on post.LOC.SG wall_tiler.NOM.SG floor_layer.NOM.SG
'working as a wall tiler and a floor layer'
(www.sannort.pl/szkolenia/zawodowe/124-glazurnik-posadzkarz)
f. *SZKOLENIE.* *Posadzkarz-* *glazurnik.*
training.NOM.SG floor_layer.NOM.SG wall_tiler.NOM.SG
'A training course for a floor layer and wall tiler'
(https://zdz.kielce.pl/index.php/?option=com_content&view=article&id=10)

(64) a. *łowcy-zbieracze* (gatherers-hunters) – 10 hits (NOM.PL) in NKJP
b. *zbieracze-łowcy* (hunters-gatherers) – 3 hits (NOM.PL)
c. *Jedynie* *łowcy-* *zbieracze* *wolni* *byli*
only hunter.NOM.PL gatherer.NOM.PL free.NOM.PL be.PST.3PL
od *tej* *plagi* *cywilizacji.*
from this.GEN.SG plague.GEN.SG civilisation.GEN.SG
'Only hunter-gatherers were exempt from that civilisation plague.'
d. *Zbieracze-* *łowcy* *mieli* *więcej* *od* *nas*
gatherer.NOM.PL hunter.NOM.PL have.PST.3PL more than WE.GEN
wolnego *czasu.*
free.GEN.SG time.GEN.SG
'Gatherer-hunters had more free time than we have.'

Some word orders are ruled out if a coordinate combination exhibits directional semantics. While there exists the multi-word unit *kierowca-dostawca* (driver deliverer) 'delivery driver,' there are no corpus attestations of *dostawca-kierowca* (deliverer driver) 'delivery driver.' The latter order would imply (incorrectly) that the action of delivering goods precedes the action of driving. The relation of temporal precedence of two professions may be signalled by the word order in such juxtapositions as *aktor-polityk* (actor politician) 'an actor and politician, an actor-turned politician.'

(65) *w* *rolę* *aktora-* *polityka* *wcielił* *się*
in role.LOC.SG actor.GEN.SG politician.GEN.SG impersonate.PST.3SG REFL
tam *Arnold* *Schwarzenegger*
there Arnold.NOM.SG Schwarzenegger.NOM.SG
'Arnold Schwarzenegger impersonated the actor-politician.' (NKJP)

Instead of temporal precedence, word order inside coordinate juxtapositions may reveal a difference in the communicative value (i.e., information structure) of their constituents, as shown by the examples below taken from Kallas (1980). The initial position of the word *księgarz* 'bookseller' in (66a) implies that it is the basic function of the person denoted by the coordinate juxtaposition. What is suggested by (66b), in contrast, is that the referent of the NN combination is primarily a publisher.

(66) a. *księgarz-wydawca* (bookseller publisher) 'bookseller-publisher'
b. *wydawca-księgarz* (publisher bookseller) 'publisher-bookseller'

Lack of paradigmatic substitution is regarded as a feature of phrasal nouns (see Masini and Benigni 2012 on Russian phrasal nouns). NN juxtapositions which denote combinations of professions show a considerable degree of paradigmatic substitution. This can be shown for the reversible coordinate combination *językoznawca-slawista* (linguist Slavist) 'a linguist who is a Slavist' – *slawista językoznawca* (Slavist linguist) 'a Slavist who is a linguist.' The initial constituent *językoznawca* 'linguist' can be followed by terms denoting various philologists, as shown in (67). If the first constituent of a coordinate combination is *slawista* 'specialist in Slavonic studies; Slavist,' it can combine with terms denoting specialists in various areas, such as *kulturoznawca* 'specialist in cultural studies' or *literaturoznawca* 'specialist in literary studies; literary scholar' (see 68).

(67) a. *językoznawca-slawista* (linguist Slavist) 'a linguist and specialist in Slavonic studies'
b. *językoznawca-romanista* (linguist Romanist) 'a linguist and specialist in Roman studies'
c. *językoznawca-polonista* (linguist Polish_philologist) 'a linguist and specialist in Polish studies'

(68) a. *slawista-językoznawca* (Slavist linguist) 'a Slavist who is a linguist'
b. *slawista-kulturoznawca* (Slavist specialist_in_culture_studies) 'a Slavist and a specialist in culture studies'
c. *slawista-literaturoznawca* (Slavist literary_scholar) 'a Slavist and a specialist in literary studies'
d. *slawista-przekładoznawca* (Slavist specialist_in_translation_studies) 'a Slavist and a specialist in translation studies'

The influence of extralinguistic factors on the creation and institutionalisation of coordinate juxtapositions is visible in the formation of names of furniture items. Such restrictions result in the lack of complete paradigmatic substitutability of constituents of the phrasal nouns in question.

This is shown in (69) for NN combinations containing the lexeme *pufa* 'pouffe, ottoman.'

(69) a. *pufa-worek* (pouffe sack) 'beanbag chair'
b. *pufa-fotel* (pouffe armchair) 'beanbag chair'
c. *pufa-schowek* (ottoman boxroom) 'ottoman storage chest'
d. *pufa-kufer* (ottoman trunk) 'ottoman storage chest'
e. **pufa-szafa* (ottoman wardrobe) intended meaning: 'both an ottoman and a wardrobe'

Coordination of coordinate juxtapositions is, in principle, possible but the resulting phrase is ambiguous, as shown in (70).

(70) *Zatrudnimy* *językoznawcę* *anglistę* *lub* *romanistę*.
employ.FUT.1PL linguist.ACC.SG Anglicist.ACC.SG or Romanist.ACC.SG
a. We'll employ a linguist who is either an Anglicist or Romanist.
b. We'll employ either a linguist who specializes in English studies or a Romanist (no matter what his/her specialty is).

(71) *Szukamy* *pufy-* *fotela* *lub* *kufra*.
search.PRS.1PL pouffe.ACC.SG armchair.ACC.SG or trunk.ACC.SG
a. We're looking for a beanbag chair or a storage chest.
b. We're looking for a beanbag chair or an ottoman storage chest.

Another issue to consider is the referentiality of constituents of coordinate NN combinations. The sentences in (72) could be construed as indicating that any of the consituents of coordinate juxtapositions is available as an antecedent for a personal pronoun or a relative pronoun.

(72) a. *Rozmawiałam* *z* *tym* *aktorem-* *reżyserem* *i*
talk.PST.1SG with this.INS.SG actor.INS.SG director.INS.SG and
uważam *go* *za* *bufona*.
regard.PRS.1SG him.ACC as braggart.ACC.SG
'I talked to that actor-director and regard him as a braggart.'
b. *Clint Eastwood* *to* *amerykański* *aktor-* *reżyser*,
Clint Eastwood COP American.NOM.SG actor.NOM.SG director.NOM.SG
który *dostał* *nagrodę* *Oscara* *w roku 1992*.
who.NOM.SG receive.PST.3SG prize.ACC.SG Oscar.GEN.SG in year 1992
'Clint Eastwood is an American actor-director who won the Academy Award in 1992.'

c. *Roberto Benigni* *to* *włoski* *aktor-* *reżyser,*
Roberto Benigni COP Italian.NOM.SG actor.NOM.SG director.NOM.SG
który *dostał* *nagrodę* *Oscara* *w roku 1998.*
who.NOM.SG receive.PST.3SG prize.ACC.SG Oscar.GEN.SG in year 1998
'Roberto Benigni is an Italian actor-director who won the Academy Award in 1998.'

The pronoun *go* 'him' in (72a) could be marked as coreferential either with *aktor* 'actor' or *reżyser* 'film director', and this would not result in any change in meaning. Actually, the personal pronoun could be coreferential with both constituents of the coordinate juxtaposition in (72), as they both act as semantic heads and have the same referent, namely, a person who is both an actor and a film director. We might be tempted to take a different position in (72b–c) and regard *reżyser* 'film director' as an antecedent for *który* 'who' in (72b) and *aktor* 'actor' as an antecedent for *który* 'who' in (72c). However, it seems more appropriate to analyse the coreferentiality of *który* in the same way in all the sentences in (72). The information that Clint Eastwood won the Academy Award for Best Director in 1992, and Roberto Benigni won an Oscar for Best Actor in a Leading Role in 1998 is a part of encyclopedic knowledge, and has no bearing on the coreference relations within the sentences in (72b–c).[16]

The juxtaposition *aktor-reżyser* 'actor-director' consists of nouns which exhibit the same grammatical gender (i.e., masculine gender). When we look at coordinate juxtapositions whose constituents differ in their grammatical gender, it can be shown that it is only the left-hand constituent which can be regarded as the antecedent for personal pronouns or for the relative pronoun *który* 'who/which.' In the NN combination in (73), the noun of feminine gender (*torba* 'bag') is followed by the noun of masculine gender (*worek* 'sack'). The left-hand constituent *torba* 'bag' is the morphological head, which determines the gender of the whole NN combination (as shown by the feminine agreement markers on the premodifying possessive *moja* 'my' and the adjective *nowa* 'new'). Therefore, the juxtaposition in question can be coreferential with the relative pronoun in the feminine form, namely, *która* 'which.F,' and not *który* 'which.M.' The morphological head of the NN combination in (74) is *szampon* 'shampoo,' which is of masculine gender, while the right-hand constituent *odżywka* 'conditioner' is of feminine gender. The whole NN juxtaposition is of masculine gender, and so it can act as an antecedent for the personal pronoun *go* 'him/it' (as in 74a), and not for *jej* 'her/it' (in 74b).

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[16] Let us observe that those sentences are ambiguous to listeners who do not know in what areas those film-directors have won their Oscars.

(73) a. *To jest moja nowa torba- worek,*
this be.PRS.3SG my.NOM.SG new.NOM.SG bag.NOM.SG sack.NOM.SG
którą kupiłam w galerii handlowej.
which.F.ACC.SG buy.PST.1SG in gallery.LOC.SG commercial.LOC.SG
'This is my new holdall bag (hobo bag) which I bought in a shopping centre.'

b. **To jest moja nowa torba- worek,*
this be.PRS.3SG my.NOM.SG new.NOM.SG bag.NOM.SG sack.NOM.SG
który kupiłam w galerii handlowej.
which.M.ACC.SG buy.PST.1SG in gallery.LOC.SG commercial.LOC.SG
'This is my new holdall bag (hobo bag) which I bought in a shopping centre.'

(74) a. *Nie lubię tego szamponu- odżywki.*
not like.PRS.1SG this.GEN.SG shampoo.GEN.SG conditioner.GEN.SG
Nie będę go używać.
not be.FUT.1SG him/it.GEN use.INF
'I don't like this 2-in-1 shampoo and conditioner. I won't use it.'

b. *Nie lubię tego szamponu- odżywki.*
not like.PRS.1SG this.GEN.SG shampoo.GEN.SG conditioner.GEN.SG
Nie będę jej używać.
not be.FUT.1SG her/it.GEN use.INF
'I don't like this 2-in-1 shampoo and conditioner. I won't use it.' (*jej* 'her/it' cannot be coreferential with *szampon-odżywka* '2-in-1 shampoo and conditioner'.)

The coordinate juxtapositions in (73) behave, in this respect, similarly to Polish morphological compounds, in which only the head constituent (or the compound as a whole) can act as an antecedent for anaphoric elements.

To conclude briefly, the analysis of the behaviour of coordinate NN juxtapositions reveals that they show both word-like and phrase-like properties.

Let us now consider attributive NN juxtapositions, such as those in (75). In the revised typology proposed by Scalise and Bisetto (2009) at the end of their article, such compound-like combinations can be regarded as belonging to the appositive subgroup of ATAP multi-word units, since their non-head constituent is a noun.

(75) a. *kobieta guma* (woman rubber) 'female contortionist'
b. *wywiad-rzeka* (interview river) 'extended interview'
c. *pisarz legenda* (writer legend) 'legendary writer'
d. *słowa klucze* (words keys) 'key words'
e. *ludzie drogowskazy* (people singposts) 'exemplary role models'

f. *podwórko studnia* (backyard well) 'inner backyard'
g. *kobieta anioł* (woman angel) 'an angel of a woman'
h. *utwór potwór* (piece_of_writing monster) 'a terrible piece of writing'

Like English NN compounds belonging to the ATAP class (such as *snail mail* and *ghost writer*), the modifier constituent in the Polish phrasal lexemes above denotes a property which is attributed to the head. In the case of *kobieta guma* (woman rubber) 'female contortionist,' the property of rubber, that is, flexibility, is attributed to a woman (i.e., to her limbs). An interview denoted by the NN expression *wywiad rzeka* (interview river) 'extended interview' is long (and this is a property which can be associated with rivers). A backyard which can be called *podwórko studnia* (backyard well) resembles a well in its shape (since it is a deep vertical hole) and in being lined with bricks. The expression *ludzie drogowskazy* (people signposts) refers to people who can serve as exemplars, that is, as role models to others.

Kallas (1980: 118) uses the expression comparative combinations (Polish *grupy porównawcze*) with reference to the NN complexes mentioned above, such as *dzieci kwiaty* (children flowers) 'flower children, hippies.' When the list of semantic functions postulated by Jackendoff (2010, 2016) is taken into consideration, the NN combinations above can be regarded as representing the function SIMILAR (X,Y) 'an N1 that is similar to N2.'[17]

Masini and Scalise (2012: 76) give analogical examples of attributive compounds, or attributive compound-like expressions, from Italian, for instance, *viaggo lampo* (journey lightning) 'very fast journey' and *discorso fiume* (speech river) 'very long speech.' When discussing NN lexical units in French and English, Arnaud and Renner (2014) note that there is an analogy between the head and the non-head in such English compounds like *crocodile clips* and *bullet train*, or the French lexical unit *pommes allumettes* (potatoes matchsticks) 'thin-cut fries.' They view such NN combinations as involving a metaphor-like attribution. Since a property of the non-head is often attributed to the head in a metaphorical manner, such NN combinations are mostly non-compositional semantically. For instance, the compositional reading of *wywiad rzeka* (interview river) could (incorrectly) be stated as 'both an interview and a river' or 'an interview which looks like a river.'

Apart from semantic opacity, the similative attributive combinations in (75) exhibit other word-like properties. They show lexical integrity:

[17] Jackendoff formulates this semantic function on the basis of English examples, such as *piggy bank* and *hairpin bend*; hence, his original wording is 'an N2 that is similar to N1.' In the case of Polish phrasal nouns, the head is on the left; hence, it is N1.

the insertion of modifiers of the non-head makes the whole sequence ungrammatical or changes it into a regular syntactic phrase. For instance, *kobieta guma* cannot be expanded into **kobieta guma arabska* (woman gum Arabic) or **kobieta rozciągliwa guma* (woman stretchable rubber). They are not reversible, as indicated by the unacceptability of such combinations as **guma kobieta* (rubber woman), **rzeka wywiad* (river interview), or **klucze słowa* (key words). Their non-reversibility is due to both their semantic opacity and their head-nonhead internal structure.

Similative composite units are not recursive; hence, potential NN combinations such as **samolot koszmar widmo* (airplane nightmare ghost) and **kobieta anioł marzenie* (woman angel dream) sound decidedly odd and unacceptable.

Particular NN combinations differ in the paradigmatic substitutability of their constituents. For instance, in the expression *kobieta guma* (woman rubber) 'female contortionist,' the constituent *guma* 'rubber, gum' cannot be replaced by *lateks* 'latex' to produce **kobieta lateks*. The expression *powieść rzeka* (novel river) 'very long novel' cannot be changed into **powieść morze* (novel sea). In contrast, the NN combination *słowa klucze* (words keys) 'key words' has an alternative variant *wyrazy klucze* (words keys). The head constituent can be easily replaced in attributive complexes with the words *potwór* 'monster,' *legenda* 'legend,' *koszmar* 'nightmare,' *marzenie* 'dream,' and *anioł* 'angel.' For instance, apart from the phrasal lexeme *utwór potwór* (piece_of_writing monster) 'a terrible piece of writing' and the combinations listed in (76), Google searches attest to the occurrence of strings such as *pielęgniarka-potwór* (nurse monster) 'a monster of a nurse,' *ojciec potwór* (father monster)'a monster of a father,' *doktor potwór* (doctor monster) 'a monster of a physician,' *ksiądz potwór* (priest monster) 'a monster of a priest,' *szef potwór* (boss monster) 'a monster of a boss,' and *ryba-potwór* (fish monster) 'a monster of a fish.'[18]

(76) a. *Kobieta-potwór! Jej zbrodnia wstrząsnęła Ameryką.*
woman.NOM.SG monster.NOM.SG her crime.NOM.SG shock.PST.3SG America.INS.SG
'A monster of a woman! Her crime shocked America.' (https://www.interia.tv ›Wiadomości‹ Świat)

[18] As shown by the examples in (76) taken from Google searches, as well as by the data found in NKJP and NFJP, speakers of Polish tend to insert a hyphen between similative and expressive combinations. According to prescriptive sources, for instance, SJP PWN, such combinations should be regarded as attributive and spelled as separate orthographic words.

b. *Nauczycielka-* *potwór* *powinna* *dostać*
female_teacher.NOM.SG monster.NOM.SG should.3SG get.INF
dyscyplinarkę
disciplinary_proceedings.ACC.SG
'Disciplinary proceedings should begin concerning a female teacher who is a monster.' (telewizjarepublika.pl/to-jakis-absurd-nauczycielka-krytykuje-3-klasistke-bo-quottej-u..)

The possibility of coordination depends on the word used in the non-head position. For instance, while both *kobieta guma* (woman rubber) 'female contortionist' and *dziecko guma* (child rubber) 'child contortionist' are attested, the string in (77a) sounds unacceptable to me. However, the coordinated combinations in which the modifier is the lexeme *marzenie* 'dream,' *potwór* 'monster,' and *legenda* 'legend' are acceptable.[19]

(77) a. ?**kobieta i dziecko guma* (woman and child contortionist) hardly acceptable in the meaning 'a female contortionist and a child contortionist' acceptable in the meaning 'a child contortionist and a woman'
b. *praca i samochód marzenie* (work and car dream)
possible meaning: 'a dream of a car and a dream of a job'
c. *matka lub ojciec potwór* (mother or father monster) 'a monster of a mother or a monster of a father'
d. *piłkarz i trener legenda* (footballer and coach legend) 'a legend of a football player and a legend of a coach'

The non-head constituent of attributive combinations in (75–77) is not available for anaphoric reference. This can be demonstrated in (78) for NN complexes in which the head and non-head differ in their grammatical gender. For instance, the head constituents *piosenka* 'song' and *praca* 'job' are of feminine gender, while the modifier nouns *potwór* 'monster' and *koszmar* 'nightmare' are of masculine gender. Consequently, the relative pronoun *który* 'which.M' in (78a) cannot take as its antecedent the juxtaposition *piosenka-potwór* 'a monster of a song,' which inherits the feminine gender from its head. The sequence of sentences in (78b) is unnatural, since the pronoun *niego* 'him/it.ACC' cannot be coreferential with *praca koszmar* 'a nightmare of a job' (which is a feminine gender phrasal noun, as its head *praca* 'job').

[19] The strings in (77d) and (77b) have alternative interpretations: *legenda trener i piłkarz* 'a legendary coach and a football player' and *samochód marzenie i praca* 'a dream of a car and a job.'

The juxtapostition *trener legenda* 'legendary coach' in (78c) takes its masculine gender from the head *trener* 'coach,' so it cannot serve as an antecedent for the feminine pronoun *ona* 'she/it.NOM.'

(78) a. **piosenka- potwór, który zawładnął*
song(F.)NOM.SG monster(M.)NOM.SG which.M.NOM.SG conquer.PST.3SG
listami przebojów
list.INS.PL hit.GEN.PL
intended meaning: 'a monstrous song which conquered the charts'

b. *To była praca koszmar*$_i$*.*
it.NOM be.PST.3SG work(F).NOM.SG nightmare(M).NOM.SG
Przez niego$_{*i}$ *nie mogłam spać po nocach.*
through him/it.ACC not can.PST.1SG sleep.INF at night.LOC.PL
'It was a horrible (lit. monstrous) job. I couldn't sleep at nights because of him/it.' (the pronoun *niego* 'him/it' cannot be coreferential with *potwór* 'monster'.)

c. *Zatrudniliśmy włoskiego trenera legendę*$_i$*.*
employ.PST.1PL Italian.GEN.SG coach(M.)GEN.SG legend(F.)GEN.SG
Okazała się ona$_{*i}$ *wrakiem człowieka.*
turn_out.PST.3SG REFL she/it.NOM wreck.INS.SG man.GEN.SG
?'We employed a (male) Italian legendary coach. She turned out to be a human wreck.' (*ona* 'she/it' cannot be coreferential with *legenda* 'legend')

The following types of NN juxtapositions are treated in prescriptive sources as attributive combinations. However, it will be argued below that they are similar in certain respects to coordinate combinations, such as *aktor-polityk* 'actor and politician' or *producent-reżyser* 'producer and film director.' Moreover, it will be shown that the NN complexes in (79–81) exhibit word-like and phrase-like properties.

(79) a. *wagon cysterna* (wagon tank) 'tank wagon, tankcar'
b. *samochód chłodnia* (car cooler) 'refrigerator truck'
c. *pies przewodnik* (dog guide) 'guide dog'
d. *matka męczennica* (mother female_martyr) 'martyr mother'
e. *miasto ogród* (city garden) 'garden city'
f. *nauczyciel emeryt* (teacher retiree) 'retired teacher'

(80) a. *kierowca cham* (driver lout) 'a lout of a driver'
b. *dyrektor idiota* (manager idiot) 'an idiot of a manager'
c. *mąż fajtłapa* (husband milksop) 'a milksop of a husband'
d. *poeta pijak* (poet drunkard) 'poet who is a drunkard'

(81) a. *kobieta szef* (woman boss) 'female boss'
b. *kobieta pilot* (woman pilot) 'woman pilot'
c. *kobieta ksiądz* (woman priest) 'woman priest'
d. *kobieta lekarz* (woman physician) 'woman physician'

Prescriptive linguists regard the above NN complexes as attributive (and not coordinate), and this decision results in the current recommendation to write such NN combinations as separate orthographic words, in contrast to coordinate juxtapositions, which are hyphenated, for instance, *aktor-tancerz* 'actor-dancer.' In the past, constituents of juxtapostions such as those in (79–81) were commonly linked with a hyphen. Damborský (1966) uses the hyphen in his examples of dvandvas, such as *poeta-uczony* (poet scholar) 'poet-scholar,' *wagon-restauracja* (wagon restaurant) 'dining car,' and *kobieta-potwór* (woman monster) 'woman who is like a monster.' The spellings *statek-chłodnia* (ship cooler) 'refrigeration ship' and *statek-tankowiec* (ship tanker) 'tanker' can be found in the Dictionary of the Polish Language by Witold Doroszewski (1958–1969). Kallas (1980: 55–56, 153) uses the hyphen in the NN complexes *fotografik-kobieta* (photographer woman) 'woman photographer,' *matka-męczennica* (mother martyr+FEM) 'martyr mother, mother who is a martyr,' *lalka-niemowlak* (doll infant) 'babydoll, i.e. a doll which looks like a baby,' and *samochód-cysterna* (car tank) 'tankcar.'[20]

Data from the NKJP corpus indicate that speakers spell such combinations either as separate orthographic words or as hyphenated complexes. For instance, there are 11 instances of (various case forms of) the hyphenated juxtaposition *statek-przetwórnia* (ship processing_plant) 'factory ship, i.e. a ship which is a processing plant' in NKJP, compared to two instances of non-hyphenated *statek przetwórnia*. There are 5 examples of the hyphenated spelling of *kobieta-pilot* (woman pilot) 'woman pilot' (NOM.SG) and 10 instances of *kobieta pilot* 'woman pilot' (NOM.SG) in the corpus. Moreover, the inspection of websites which offer linguistic advice on the acceptability of given forms (such as poradnia językowa PWN and poradnia językowa UŚ) testifies to frequent doubts experienced by native speakers of Polish concerning the use or omission of hyphens in NN complexes.

Let us consider definitions and properties of coordinate compounds and compound-like multi-word units. Scalise and Bisetto (2009) observe that coordinate compounds are potentially recursive and their constitu-

[20] Nagórko (1996: 191) recommends the spelling *wagon cysterna* 'tank wagon' and *statek przetwórnia* (ship processing_plant) 'factory ship, i.e. a ship which is a processing plant,' yet she accepts also the hyphenated forms *szpital-pomnik* (hospital monument) 'memorial hospital' and *kobieta-wąż* (woman snake) 'snake woman.'

ents can be linked by means of the conjunction *and*. Renner and Fernández-Domínguez (2011) postulate the following paraphrase for the multifunctional class of coordinate compounds: 'an X+Y is an X which/who is also a Y.' They show that coordinate compounds are potentially reversible, though one of the possible word orders may be non-institutionalised, and therefore rare or unattested. Fabb (1998), following Allen (1978), employs the IS A Condition to identify coordinate compounds (which are assumed to have two semantic heads). When discussing English copulative compounds, Olsen (2001) puts here the semantic classes labelled Profession+Property (e.g., *poet-drunkard*, *diplomat-playboy*), Profession+Characteristic Activity (*patriot-poet*, *poet-activist*), and Characteristic Properties (*hero-martyr*, *nerd-genius*). Scalise and Bisetto (2009) list *poet doctor*, *girlfriend*, and *woman doctor* as examples of coordinate compounds. Arcodia et al. (2010) treat the Russian NN combination *ženščina vrač* (woman doctor) as a coordinate compound.

The paraphrase 'an X+Y is an X which/who is also a Y,' or 'both an X and a Y,' can be felicitously employed for stating the meaning of the NN juxtapositions in (79–81), such as *dyrektor idiota* 'both a manager and an idiot,' *kobieta pilot* 'both a woman and a pilot,' and *wagon cysterna* 'both a wagon and a tank.' This is because the whole NN combination denotes an intersection of two sets, for instance, the set of women and the set of pilots, the set of managers and idiots, or the set of wagons and tanks.

The application of the IS A Condition shows that there are two semantic heads of the juxtapositions in (79–81).

(82) a. *Wagon* *cysterna* *jest* *wagonem*.
wagon.NOM.SG tank.NOM.SG be.PRS.3SG wagon.INS.SG
'A tank wagon is a wagon.'

b. *Wagon* *cysterna* *jest* *cysterną*.
wagon.NOM.SG tank.NOM.SG be.PRS.3SG tank.INS.SG
'A tank wagon is a tank.'

(83) a. *Recenzent* *idiota* *jest* *recenzentem*.
reviewer.NOM.SG idiot.NOM.SG be.PRS.3SG reviewer.INS.SG
'An idiot of a reviewer is a reviewer.'

b. *Recenzent* *idiota* *jest* *idiotą*.
reviewer.NOM.SG idiot.NOM.SG be.PRS.3SG idiot.INS.SG
'An idiot of a reviewer is an idiot.'

(84) a. *Kobieta* *pilot* *jest* *kobietą*.
woman.NOM.SG pilot.NOM.SG be.PRS.3SG woman.INS.SG
'A woman pilot is a woman.'

b. *Kobieta* *pilot* *jest* *pilotem.*
woman.NOM.SG pilot.NOM.SG be.PRS.3SG pilot.INS.SG
'A woman pilot is a pilot.'

The reversibility test suggests that the NN combinations in (80) and (81) can be treated as coordinate juxtapositions.

(85) a. *To* *tak* *jak* *ten* *zabity* *idiota*
this so like this.NOM.SG kill.PASS.PTCP.NOM.SG idiot.NOM.SG
policjant *w* *Bytomiu*
policeman.NOM.SG in Bytom.LOC.SG (NKJP)
'This is like that idiot of a policeman killed in Bytom'

b. *Policjant* *idiota* *zgubił* *alkomat*
policeman.NOM.SG idiot.NOM.SG lose.PST.3SG breathalyser.ACC.SG
'An idiot of a policeman has lost a breathalyser'
(forum.gazeta.pl/.../w,635,163952759,163952759,Policjant_idiota_zgubil_alkomat.html)

(86) a. *jedyna* *kobieta* *pilot* *ponaddźwiękowego*
only.NOM.SG woman.NOM.SG pilot.NOM.SG supersonic.GEN.SG
Concorda
Concorde.GEN.SG
'the only female pilot of supersonic Concorde' (NKJP)

b. *Dlaczego* *pilot* *kobieta,* *a* *nie* *zdrowy,*
why pilot.NOM.SG woman.NOM.SG and not healthy.NOM.SG
duży *i* *silny* *mężczyzna?*
big.NOM.SG and strong.NOM.SG man.NOM.SG
'Why a female co-driver, and not a healthy, big and strong man?' (NKJP)

There are no examples in the corpus (or returned by Google searches) of the inverted order of the combinations in (79), that is,**cysterna wagon* (tank wagon), **chłodnia statek* (freezer ship), and **przewodnik pies* (guide dog). This suggests that the NN complexes in question are attributive. However, in the constructed examples, presented in (87), the NN juxtapositions with the inverted word order sound acceptable.

(87) a. *Czy* *potrzebujesz* *chłodni* *samochodu* *czy*
if need.PRS.2SG freezer.GEN.SG car.GEN.SG or
chłodni *statku?*
freezer.GEN.SG ship.GEN.SG
'Do you need a refrigerated truck or a refrigerated ship?'

b. *Piszecie* *o* *matkach* *męczennicach.* *A* *co*
write.PRS.2PL about mother.LOC.PL martyr.LOC.PL and what
z *męczennicami* *córkami?*
with martyr.INS.PL daughter.INS.PL
'You write abouth martyr mothers. And what about martyr daughters?'

The NN combinations in (80), in spite of being reversible, resemble attributive compounds in that one of their constituents can be replaced by a synonymous adjective or participle, as shown in (88).

(88) a. *kierowca cham* (driver lout) 'a lout of a driver'
a.′ *chamski kierowca* (loutish driver) 'a loutish driver'
b. *mąż fajtłapa* (husband milksop) 'milksop husband'
b.′ *fajtłapowaty mąż* (milksoppy husband) 'a milksoppy husband'
c. *dyrektor idiota* (manager idiot) 'an idiot of a manager'
c.′ *zidiociały dyrektor* (idiotic manager) 'some idiot manager'
d. *poeta pijak* (poet drunkard) 'a poet who is a drunkard'
d.′ *pijący poeta* (drinking poet) 'a drinking poet'

In the case of the NN complexes in (81), for instance, *kobieta pilot* (woman pilot) or *kobieta lekarz* (woman physician), the noun *kobieta* 'woman' cannot be replaced by the adjective *kobiecy* 'female,' since apart from the relational reading 'pertaining to women' (as in *ruch kobiecy* 'women's movement'), the denominal adjective in question shows the qualitative reading 'characteristic of women, effeminate.' It is the qualitative reading of the adjective which sounds appropriate in the paraphrase of the A+N phrasal combinations such as (*bardzo) kobiecy pilot* '(very) effeminate pilot' and *(bardzo) kobiecy lekarz* '(very) effeminate physician.' Alternatively, the AN combination *kobiecy lekarz* (woman.RA physician) can be interpreted as meaning 'physician for women, gynaecologist.'

The adjectival replacement appears to be hardly possible for some of the combinations in (79). *Pies przewodnik* 'guide dog' does not correspond to ?*pies przewodzący*, since the latter combination could be interpreted as referring to a lead dog (Polish *pies prowadzący*), that is, to the animal which is at the front of the sled team and regulates the pace of the remaining dogs. *Matka męczennica* 'mommy martyr, martyr mom' cannot be replaced by the AN phrase **męczennicza matka* (martyr.RA mother). In contrast, there are NA[21] juxtapositions synonymous with the NN juxtapositions in (89).

[21] There is one attestation of the RA+N combination *cysternowy statek* (tank.RA ship), as an equivalent of *statek cysterna* (ship tank) 'tanker' (see https://pl.dreamstime.com/zdj%C4%99cie-stock-editorial-koloru-%C5%BC%C3%B3%C5%82tego-cyster

(89) a. *wagon cysterna* (wagon tank) 'tank wagon'
a.′ *wagon cysternowy* (wagon tank.RA) 'tank wagon'
b. *samochód chłodnia* (car freezer) 'refrigerated car'
b.′ *samochód chłodniczy* (car freezer.RA) 'refrigerated car'
c. *statek chłodnia* (ship freezer) 'refrigerated ship'
c.′ *statek chłodniczy* (ship freezer.RA) 'refrigerated ship'
d. *nauczyciel emeryt* (teacher retiree) 'retired teacher'
d.′ *nauczyciel emerytowany* (teacher retired) or *emerytowany nauczyciel* (retired teacher) 'retired teacher'

Renner and Fernández-Domínguez (2011) assume that coordinate compounds are relatively transparent semantically and that their constituents are (usually) co-hyponyms. The lexemes *chłodnia* 'refrigerator, cooler' and *statek* 'ship' are not obvious co-hyponyms, though the lexeme *artefact* could be regarded as a general term for *refrigerator* and *ship*. The words *dyrektor* 'manager' and *idiota* 'idiot' do not have an obvious common superordinate term, apart from the word *człowiek* 'human being.' However, semantic transparency is clearly a property of the NN juxtapositions in (79–81).

Moreover, when regarding the NN complexes *statek-przetwórnia* (ship processing_plant) 'factory ship'[22] and *statek chłodnia* (ship freezer) 'refrigerated cargo ship' as noun phrases consisting of a head noun and a nominal attribute, Nagórko (1996) puts them in the same group as *śliwka węgierka* (plum Hungarian) 'fruit of *Prunus domestica*; damson' or *lekarz pediatra* (physician pediatrician) 'pediatrician.' The latter juxtapositions are better examples of attributive NN combinations, since their first constituent is a superordinate term, and the second constituent is its hyponym.

Let us now consider whether NN combinations in (79–81), which belong to the border between coordinate and attributive complexes, exhibit lexical integrity (which is typical of lexemes). As mentioned above, Sex+Profession combinations and expressive combinations are reversible. This property is characteristic of syntactic phrases, rather than lexemes, but it is also typical of coordinate NN combinations. Another violation of lexical integrity is the possibility of inserting elements inside NN combinations, for instance, individual modifiers of their constituents. Such a possibility exists, as is attested by the examples in (90) (some of them from the NKJP corpus).

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nowy-statek-na-g%C5%82%C3%B3wnej-rzece-blisko-frankfurt-image86369128). For some NN and RA+N juxtapositions, there exist corresponding suffixal nouns, such as *chłodniowiec* (freezer+ADJZ+NMLZ) 'refrigerated cargo ship' for *statek chłodnia* (ship freezer) and *statek chłodniczy* (ship freezer.RA).

[22] Szymanek (2010: 226) mentions *trawler-przetwórnia* 'factory trawler' as a coordinate juxtaposition.

(90) a. *idiota* *recenzent* *teatralny*
idiot.NOM.SG reviewer.NOM.SG theatrical.NOM.SG
'an idiot of a theatre critic'

b. *idiotka* *dyrektorka* *sierocińca* (NKJP)
female_idiot.NOM.SG female_manager.NOM.SG orphanage.GEN.SG
'an idiotic female manager of an/the orphanage'

b. *statek-* *przetwórnia* *wielorybnicza* (NKJP)
ship.NOM.SG processing_plant.NOM.SG whale.RA.NOM.SG
'factory whaling ship'

c. *Kobiety* *Pilotki* *Służb* *Powietrznych* (NKJP)
woman.NOM.PL female_pilot.NOM.PL service.GEN.PL air.RA.GEN.PL
'Women Airforce Service Pilots'

Left-hand or right-hand constituents of the NN complexes in (79–81) can be coordinated.[23] This is shown by the constructed examples in (91).

(91) a. *statek chłodnia lub cysterna* (ship freezer or tank) 'refrigerated ship or tank ship'
b. *reżyserzy i producenci idioci* (directors and producers idiots) 'idiots who are film directors and producers'
c. *kobiety i mężczyźni piloci* (women and men pilots) 'female and male pilots'
d. *wagon lub statek cysterna* (wagon or ship tank) 'a tank wagon or a tank ship'

Since the combinations whose status is intermediate between coordinate and attributive formations are transparent semantically, they show few restrictions[24] of paradigmatic substitutability.

(92) a. *kobieta pilot* (woman pilot) 'female pilot'
b. *kobieta anestezjolog* (woman anaesthesiologist) 'female anaesthesiologist'
c. *kobieta nauczyciel akademicki* (woman teacher academic) 'female academic'
d. ?*kobieta fryzjer* (woman hairdresser) 'woman who is a hairdresser'

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[23] As in the case of similative attributive compounds, some of the examples allow more than one reading. For instance, *kobieta i mężczyzna-kapłan* (woman and man priest) could possibly refer to a male priest and a female priest, but in an article on celibacy, it was employed in the sense of 'a male priest and a woman.'

[24] Those restrictions involve the lack of the need for a phrasal lexeme of the NN type if the object to be named does not exist, for instance, **samolot chłodnia* (plane freezer) '?refrigerated plane,' or if there is an institutionalised lexeme denoting the object in question, such as *fryzjerka* (hairdresser+suff) 'female hairdresser' instead of *kobieta fryzjer* (woman hairdresser).

(93) a. *producent cham* (producer lout) 'a lout of a producer'
b. *producent oferma* (producer milksop) 'a milksop of a producer'
c. *żołnierz oferma* (soldier milksop) 'a milksop of a soldier'

(94) a. *statek chłodnia* (ship freezer) 'refrigerated ship'
b. *samochód chłodnia* (car freezer) 'refrigerated car'
c. *samochód cysterna* (car tank) 'tank car'
d. **samolot chłodnia* (plane freezer) intended meaning: 'refrigerated plane'

Some occasional instances of recursion are attested, as shown by the examples in (95), found in Google searches.

(95) a. *żona-matka-męczennica* (wife mother martyr) 'martyr wife and mother'
b. *matka Polka męczennica* (mother female_Pole martyr) 'Polish martyr mother, typically Polish mother hen and mother martyr'
c. *statek rybacki/trawler/przetwórnia* (fishing_vessel trawler processing_plant) 'fishing vessel, trawler and processing plant'
d. *statek baza przetwórnia* (ship home processing_plant) 'factory mother ship'

Morphological compounds do not allow their non-heads to act as antecedents of anaphoric expressions. Given the doubts concerning the status of the NN complexes in (79–81) as coordinate or attributive units, it may be argued that either *idiota* 'idiot' is the semantic head, or both constituents are semantic heads of *idiota recenzent* 'an idiot of a reviewer.' Consequently, either the left-hand constituent or both constituents are possible antecedents of the personal pronoun *on* 'he' and the relative pronoun *który* 'which/who.'

(96) a. *To* *był* *idiota*$_i$ *recenzent*$_i$*!* *On*$_i$ *w ogóle*
it be.PST.3SG idiot.NOM.SG reviewer.NOM.SG he.NOM at all
nie *zrozumiał* *mojej* *sztuki.*
not understand.PST.3SG my.GEN.SG play.GEN.SG
'It was an idiot of a reviewer! He didn't understand my play at all!'
b. *idiota*$_i$ *recenzent*$_i$, *który*$_i$ *nie* *zna* *się*
idiot.NOM.SG reviewer.NOM.SG who.NOM.SG not know.PRS.3SG REFL
na *współczesnej* *sztuce*
on contemporary.LOC.SG art.LOC.SG
'an idiot of a reviewer, who has no knowledge of contemporary art'

However, as was pointed out earlier during the discussion of coordinate juxtapositions such as *kurs-konferencja* (course conference) 'training conference', what matters for coreference relations is the morphological head,

which is the left-hand constituent in Polish NN combinations. In the juxtaposition *wagon-cysterna*, whose constituents differ in grammatical gender (*wagon* 'wagon' being of masculine and *cysterna* 'tank' of feminine gender), the right-hand constituent is not the morphological head; thus, it cannot be an antecedent for a possessive pronoun or a relative pronoun.

(97) a. *Wagon*$_i$ *cysterna*$_j$ *zapalił się o 2*
wagon.(M.)NOM.SG tank.(F.)NOM.SG catch_fire.PST.3SG.M REFL at two
*w nocy. Jego/*jej pożar trwał do południa.*
at night. His/*her fire.NOM.SG last.PST.3SG until noon.GEN.SG
'The tank wagon caught fire at two o'clock at night. Its fire lasted until the noon.' (The possessive *jego* 'his/its' is coreferential with *wagon* 'wagon').

b. *wagon*$_i$ *cysterna*$_j$, *który*$_i$ / **która*$_j$
wagon.(M.)NOM.SG tank.(F.)NOM.SG which.M.NOM.SG which.F.NOM.SG
zapalił/ *zapaliła się w nocy
catch_fire.PST.3SG.M catch_fire.PST.3SG.F REFL at night
'the tank wagon which caught fire at night'

(98) a. *pierwsza kobieta-operator, która/ *który*
first.NOM.SG woman.NOM.SG cinematographer.NOM.SG who.F who.M
**dostał/ dostała nominację do Oscara*
receive.PST.3SG.M/receive.PST.3SG.F nomination.ACC.SG to Oscar.GEN.SG
'the first female camera operator, who was nominated for the Academy Award'

b. *Czy znasz tę kobietę-operatora filmowego?*
if know.PRS.2SG this.ACC.SG woman.ACC.SG cinematographer.ACC.SG
Ona właśnie została nominowana do
she.NOM.SG just be.PST.3SG nominate.PASS.PTCP to
nagrody Oscara.
award.GEN.SG Oscar.GEN.SG
'Do you know this female cinematographer? She's just been nominated for the Academy Award.'

Heads of morphological compounds (or compounds as whole units) can also function as antecedents for pronouns, as illustrated in (99).

(99) a. *Jesteśmy zadowoleni z pracy nowego*
be.PRS.1PL satisfied.NOM.PL with work.GEN.SG new.GEN.SG
barmanokelnera$_i$*. Damy mu*$_i$ *podwyżkę.*
waiter_bartender.GEN.SG give.FUT.1PL him.DAT rise.ACC.SG
'We are satisfied with the work of the new waiter-bartender. We'll give him a pay rise.'

If heads of NN combinations are coreferential with relative pronouns and personal pronouns, juxtapositions in (97–98) behave in this respect much like morphological compounds proper.

4.4 Summary

In this chapter I have investigated syntactic behaviour of Polish phrasal nouns, including adjective+noun combinations (in any order), NN.GEN combinations, as well as coordinate or attributive juxtapositions whose constituents agree in case. It was shown that those phrasal nouns behave, in certain respects, like (regular) syntactic phrases but share some properties of morphologically complex words (such as morphological compounds). These properties result from lexical integrity and internal cohesion of phrasal nouns, which do not allow individual modification of heads or modifiers. The insertion of such a complement or modifier makes the resulting string unacceptable, or it changes a phrasal lexeme into a free syntactic phrase (with a descriptive reading), for instance, *foka szara od kurzu* 'seal (of any species) whose fur is grey because of dust' (cf. *foka szara* 'grey seal'). Some cases of the apparent addition of individual modifiers or complements inside phrasal nouns should be interpreted as instances of recursion of phrasal lexemes, which can take other phrasal lexemes as their modifiers or heads. For example, the NA juxtaposition *własność intelektualna* 'intellectual property' can act as a complement (i.e., a genitive attribute) in the NN.GEN juxtaposition *prawo własności intelektualnej* 'intellectual property rights.'

Although phrasal lexemes (just like morphological compounds) are expected to be "syntactically fixed," coordinate NN juxtapositions and some attributive adjective+noun combinations (i.e., those containing migrating adjectives) allow word order of constituents to be changed. This is due, among others, to the semantic transparency of the juxtapositions in question, for instance, *barman-kelner* (bartender-waiter), *kelner-barman* (waiter-bartender), *zimowe opony* (winter.RA tyres), and *opony zimowe* (tyres winter.RA). Another property which brings juxtapositions closer to regular syntactic phrases is the possibility of coordination of their head or non-head constituents, as in *hodowla i ubój indyka* 'breeding and slaughter of turkey,' *hodowla bydła i koni* 'cattle and horse breeding,' *rękawice i kask ochronny* 'protective gloves and helmet,' and *odzież rekreacyjna lub sportowa* 'loungewear or sportswear'.

Some phrasal lexemes resemble morphological compounds in the lack of paradigmatic substitution of their constituents. For instance, while *lwia paszcza* (lion.RA jaw) 'snapdragon' is an institutionalised juxtapo-

sition, the AN combination *tygrysia paszcza* (tiger.RA jaw) 'jaw of a tiger' is not. However, for numerous NN or AN/NA combinations, paradigmatic substitution is available, for instance, *odzież sportowa* (clothing sport.RA) 'sportswear,' *odzież wieczorowa* (clothing evening.RA) 'evening wear,' and *suknia wieczorowa* (dress evening.RA) 'evening dress.' This property is linked to the high productivity of various patterns for creating phrasal nouns (e.g., the N+A pattern).

N+A/A+N combinations containing relational adjectives are more phrase-like in yet another feature. Examples can be constructed in which the base of the relational adjective (e.g., *magnez* 'magnesium' as a base of *magnezowy* 'magnesium.RA') can act as an antecedent for a personal or possessive pronoun, as shown in Section 4.1. Thus, it has been demonstrated that juxtapositions exhibit both word-like and phrase-like properties.

Competition between morphological compound nouns and phrasal nouns in Polish

The aim of this chapter is to investigate cases in which a morphological compound noun and a phrasal noun coexist as names for the same entity or, alternatively, call for different interpretations (in spite of their formal similarity). Competition between various types of phrasal nouns will be illustrated. Moreover, it will be shown that some structural-semantic types of nominal complexes seem to be reserved for phrasal nouns, and not for morphological compounds.

Since there are more types of phrasal nouns in Polish than in English, the organisation of this chapter will be different from the layout of Section 2.6, which was devoted to the competition between English morphological compound nouns and phrasal nouns. In discussing the topic of competition on the basis of Polish data, I will look in turn at particular structural-semantic types of compounds and multi-word units proposed by Scalise and Bisetto (2009). I will start by investigating subordinate compounds and phrasal nouns.

5.1 Subordinate compounds and phrasal nouns

It was shown in Chapter 3 that there exist Polish morphological synthetic compound nouns whose right-hand constituent is a deverbal derivative, such as *pisarz* 'writer' in *bajkopisarz* (fable+LV+write+SUFF) 'writer of fables.' Let us recall that they are traditionally termed interfixal-suffixal formations. For some of those formations, the verb+suff is not an independently occurring form, for instance, **krążca* (circulate+agentive SUFF) in *domokrążca* 'door-to-door salesman,' while in others, the right-hand constituent is attested as an independent lexeme, such as *dawca* 'giver, donor' in *krwiodawca* (blood+LV+giver) 'blood donor.'

There are also compounds referred to as interfixal-paradigmatic formations (as mentioned in Chapter 3). Their right-hand constituent is a verb stem which has been converted into a noun (without the addition of any

overt suffix) and does not occur in the nominal function as an independent lexeme, for instance, *-nosz* from *nosić* 'to carry.'

Examples can be provided of synonymous, or nearly synonymous, morphological synthetic compounds and NN.GEN phrasal nouns, where a complement-head relation holds between the head of a compound (or a phrasal noun) and its modifier.

(1) a. *bajkopisarz* (fable+LV+writer) 'fablewriter'
b. ?*pisarz bajek* (writer.NOM.SG fable.GEN.PL) 'writer of fables; fable writer'
c. *powieściopisarz* (novel+LV+writer) 'novelist'
d. ?*pisarz powieści* (writer.NOM.SG novel.GEN.PL) 'writer of novels; novelist'
e. *dramatopisarz* (play+LV+writer) 'playwright'
f. ?*pisarz dramatów* (writer.NOM.SG play.GEN.PL) 'writer of plays'

The NN.GEN combinations in (1) are provided with a question mark, since they are far less common than the corresponding morphological compounds, as is indicated by the data from NKJP. A search in the NKJP corpus returns 579 hits for the lexeme *bajkopisarz* 'fable writer' and only one example of the NN.GEN juxtaposition ?*pisarz bajek* 'writer of fables.' Similarly, while *dramatopisarz* 'playwright' is an established lexeme (with 1161 occurrences in NKJP), the NN.GEN combination ?*pisarz dramatów* (writer.NOM.SG play.GEN.PL) 'playwright' is not attested in the corpus.

Competition between lexical items, or between word-formation processes, is discussed at length by Rainer (1988, 1993, 2005). He distinguishes between type blocking and token blocking. Type blocking occurs when one word-formation pattern blocks another pattern. Van Marle (1986) formulates the so-called Domain Hypothesis and suggests that a pattern with a relatively unbounded domain (i.e., with few restrictions on its productivity) can be blocked by a pattern with a more restricted domain. For instance, in English, the suffix *-ity* blocks the attachment of the more productive suffix *-ness* to adjectives terminating in *-able*, as in *readability – ?readableness* and *dependability – ?dependableness*. Rainer (2005: 338) supports van Marle's Domain Hypothesis with data from German concerning the rivalry between the nominalising suffixes *-heit*, *-ität*, and *-ie*.

Token blocking predicts the unacceptability of a given morphologically complex lexeme due to the existence of a synonymous (non-derived or complex) lexeme. The non-derived noun *thief* blocks the occurrence of (and the institutionalisation of) the potential deverbal noun ?*stealer* in English. Malicka-Kleparska (1985) provides examples of potential diminutive nouns in Polish which are blocked by synonymous institution-

alised diminutives, for instance, *?domik* 'house.DIM' is blocked by *domek* 'house.DIM,' while *?prądek* 'electric_current.DIM' is blocked by *prądzik* 'electric_current.DIM.' Rainer (2005) points out that token blocking is related to the frequency of rival forms. High frequency lexemes can function as blocking items. Doublets are tolerated in the case of low frequency words. Rainer's observation is supported by the Polish data from Malicka-Kleparska (1985), such as the parallel forms *trójząbik* 'trident.DIM' – *trójząbek* 'trident.DIM' or *kontrabasik* 'double_bass.DIM' – *kontrabasek* 'double_bass.DIM.' Rainer (2005: 337) concludes that token blocking should be understood as a constraint on processing. Plag (2003: 65) observes that token blocking does not occur when the speaker fails to retrieve an already existing form from the lexicon. Not only idiomatic or simplex words, but stored words in general can block the occurrence of other derivatives. The Polish morphological compounds *bajkopisarz* 'fable writer' and *powieściopisarz* 'novelist' show semantic compositionality (which is not characteristic of stored derivatives), yet they can act as blocking items. They are also fairly frequent in the NKJP corpus (as shown above).

While Rainer (1988, 1993, 2005) and Plag (2003) discuss competition between word-formation processes, Poser (1992) argues that phrasal constructions can be blocked by lexical forms. He supports his claim with relevant examples from Japanese, Basque, and English. Japanese periphrastic verbs, which consist of a noun and the verb *suru* 'do,' are blocked by nonderived verbs. In Basque, periphrastic verb forms of the progressive aspect do not occur if there exist corresponding synthetic tense forms. Periphrastic comparative and superlative degree forms of English adjectives are blocked by synthetic inflectional forms, as in *bigger* –**more big* and *shortest* – **most short*.

Rivalry between such forms as *bajkopisarz* 'fable-writer' and *?pisarz bajek* 'writer of fables' shows that the output of a productive phrasal pattern, that is, NN.GEN combinations, can be blocked by morphological compounds. Blocking is suspended when the blocking item and the potential "blockee" are not exact synonyms (as pointed out by Plag 2003: 66–67). The occurrence of the phrase *pisarz bajek* (writer.NOM.SG fable.GEN.PL) 'writer of fables' in (2a) may be due to the intended difference between the propositional or connotative meaning of this expression and of the morphological compound. While *bajkopisarz* 'fable writer' denotes a person whose profession is writing fables, the NN.GEN combination *pisarz bajek* 'writer of fables' occurring in (2a), culled from the NKJP corpus, seems to refer to a person who invents stories which are difficult to believe (i.e., to someone who is a tall story teller). The NKJP corpus contains also 49 examples of the phrase *autor bajek* (author.NOM.SG fable.GEN.PL) 'author of fables,' which is not an exact synonym of *bajkopisarz*

'fable-writer.' As is shown in (2b), it can denote anyone who writes fables, no matter whether it is an occupation or only a habitual activity.[1]

(2) a. *jakiegoś* *żydowskiego* *pisarza* *bajek*
some.GEN.SG Jewish.GEN.SG writer.GEN.SG fable.GEN.PL
'of some Jewish writer of fables'

b. *Autorami* *bajek* *są* *dzieci*, *młodzież*
author.INS.PL fable.GEN.PL be.PRS.3PL child.NOM.PL youth.NOM.SG
a *nawet* *dorośli (…)* *z* *całego* *powiatu.*
and even adult.NOM.PL from whole.GEN.SG county.GEN.SG
'The authors of the fables include children, youths, and even adults from the whole county.'

Another crucial aspect of the competition between morphological compounds and NN.GEN juxtapositions is shown in (3) and (4). There are 1,351 occurrences of the compound *powieściopisarz* (novel+LV+writer) 'novelist' in NKJP and no attestation[2] of the NN.GEN combination *pisarz powieści* (writer.NOM.SG novel.GEN.PL). However, when the genitive post-head modifier in NN.GEN construction consists of N+RA, for instance, *pisarz powieści kryminalnych* (writer.NOM.SG novel.GEN.PL criminal.GEN.PL) 'writer of crime fiction,' instances of such combinations are easy to find. This is because no synthetic compounds proper terminating in *pisarz* can be formed with a complex modifier, as demonstrated by **powieściokryminalnopisarz* or **kryminalnopowieściopisarz* in (3d–e).

(3) a. *amerykańskiego* *pisarza* *powieści* *fantastycznych*
American.GEN.SG writer.GEN.SG novel.GEN.PL fantastic.GEN.PL
'of an American writer of fantasy novels'

b. *znakomity* *pisarz* *powieści* *szpiegowskich*
eminent.NOM.SG writer.NOM.SG novel.GEN.PL spy.RA.GEN.PL
'an eminent writer of spy novels'

c. *pisarz* *powieści* *kryminalnych*
writer.NOM.SG novel.GEN.PL criminal.GEN.PL
'writer of crime stories'

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[1] For the same reason, the phrasal expressions *autor dramatów* (author.NOM.SG play.GEN.PL) 'author of plays' and *twórca dramatów* (creator.NOM.SG play.GEN.PL) 'creator of plays' are not blocked by the morphological compound *dramatopisarz* 'playwright.' There are 29 occurrences of the phrase *autor dramatów* 'author of plays' and 4 instances of *twórca dramatów* 'creator of plays' in NKJP.

[2] The non-occurrence of ?*pisarz powieści*, in contrast to the phrasal expressions in (3), also seems to result from the No Redundancy Principle invoked by Booij (2005).

d. **powieściokryminalnopisarz*
(novel+LV+criminal+LV+writer)
e. **kryminalnopowieściopisarz*
(criminal+LV+novel+LV+writer)
f. *pisarz* *powieści* *historycznych*
writer.NOM.SG novel.GEN.PL historical.GEN.PL
'writer of historical novels'
g. **powieściohistorycznopisarz*
(novel+LV+historical+LV+writer)
h. **historycznopowieściopisarz*
(historical+LV+novel+LV+writer)

Let us observe that the phrase *pisarz powieści i nowel* in (4a) cannot (normally) be replaced by coordinated morphological compounds ?*powieściopisarz i nowelopisarz* in (4b). The potential formation ?*nowelopisarz* 'short story writer' is not attested in the NKJP corpus or in dictionaries (though a Google search results in 7 hits).

(4) a. *polski* *pisarz* *powieści* *i* *nowel*
Polish.NOM.SG writer.NOM.SG novel.GEN.PL and short_story.GEN.PL
'Polish writer of novels and short stories'
b. ?*polski* *powieściopisarz* *i* *nowelopisarz*
Polish.NOM.SG novel+LV+writer.NOM.SG and short_story+LV+writer.NOM.SG
intended meaning: 'Polish writer of novels and short stories'
c. ?*nowelopisarz (*short_story+LV+writer) 'short story writer'

The list of established morphological compounds terminating in *pisarz* 'writer' is not long, and includes 14 formations (according to https://www.zakonczone.pl/na/pisarz), including *dziejopisarz* (history+LV+writer) 'historian,' *sielankopisarz* (pastoral+LV+writer) 'writer of pastoral literature,' *tragediopisarz* (tragedy+LV+writer) 'tragedian,' *komediopisarz* (comedy+LV+writer) 'comedy playwright,' and *żywotopisarz* (hagiography+LV+writer) 'hagiographer; biographer of saints.'

The non-institutionalised lexeme ?*listopisarz* (letter+LV+writer) 'letter writer' has three attestations in NKJP,[3] while ?*lirykopisarz* (lyric+LV+writer) 'lyrics writer' and ?*thrilleropisarz* (thriller+LV+writer) 'thriller writer' have no corpus attestation but can be found as a result of Google searches. As the example in (5d) indicates, the speaker who employs *thrilleropisarz* 'thriller writer' is aware of its being a novel formation.

[3] One can also come across the NN.GEN combination *pisarz listów*, which denotes a habitual activity, not a profession, for instance, *nałogowy pisarz listów* 'compulsive letter writer.'

The compound ?*lirykopisarz* in (5b) seems to be a calque of the English NN combination *lyric writer*. The expected meaning of a combination of the Polish lexemes *liryka* 'lyric poetry' and *pisarz* 'writer' would be 'lyrical poet.'

(5) a. *Zbliżamy się do finału naszej akcji pisania listów do Güntera Grassa. Ostatni już dzwonek, żeby znaleźć się w niezwykłym gronie listopisarzy*. (NKJP)
'We're approaching the end of our action of writing letters to Günter Grass. It's the final call to find oneself in the extraordinary company of letter writers.'
b. *kompozytor, lirykopisarz, aranżer* 'composer, lyrics writer, (music) arranger' (https://www.facebook.com/krzysztof.wegrzynski)
c. *uważany za jednego z najlepszych współczesnych thrilleropisarzy*
'regarded as one of the best contemporary thriller writers' (www.portalkryminalny.pl/aktualnosci/recenzje/pazdziernikowa-lista-jefferydeaver)
d. *na liście najlepszych thrilleropisarzy (nie mam pojęcia czy istnieje takie słowo, jakby co zaczerpnięte z suahili)*
'on the list of the best thriller writers (I have no idea if such a word exists, for the record, it's taken from Swahili)'
(http://lubimyczytac.pl/ksiazka/165366/infekcja/wszyscy/3)

Another case of rivalry between synthetic compounds proper and phrasal nouns is provided by morphological compounds with the lexemes *biorca* 'recipient' and *dawca* 'donor' and synonymous NN.GEN combinations.

(6) a. *zleceniobiorca* (contract+LV+recipient) 'contract holder'
b. *biorca zlecenia* (recipient.NOM.SG contract.GEN.SG) 'contract holder'
c. *kredytobiorca* (credit+LV+recipient) 'borrower'
d. *biorca kredytu* (recipient.NOM.SG credit.GEN.SG) 'borrower'
e. *podatkobiorca* (tax+LV+taker) 'tax collector'
f. *biorca podatków* (taker.NOM.SG tax.GEN.PL) 'tax collector'
g. *licencjobiorca* (licence+LV+taker) 'licensee'
h. *biorca licencji* (taker.NOM.SG licence.GEN.SG) 'licensee'
i. *licencjodawca* (licence+LV+giver) 'licensor'
j. *dawca licencji* (giver.NOM.SG licence.GEN.SG) 'licensor'

There is a difference in the frequency of the above synthetic morphological compounds and corresponding NN.GEN combinations (listed in 6) in the NKJP corpus. The morphological compounds in (6) can be treated as stored naming units and show a relatively high number of occurrenc-

es in the corpus. There are 759 instances of the lexeme *zleceniobiorca* 'licensee' (in various case forms) in contrast to only one example of the string *biorca zlecenia* (taker.NOM.SG licence.GEN.SG). Furthermore, there are 5,330 attestations of the lexeme *kredytobiorca* 'borrower' in the corpus, as compared to three instances of combinations of the lexeme *biorca* 'taker, recipient' and its genitive attribute *kredytu* 'of credit.'

(7) a. *czy zleceniobiorca działał w interesie zleceniodawcy.*
if contractholder.NOM.SG act.PST.3SG in interest.LOC.SG principal.GEN.SG
'Did the contract holder act in the best interest of the principal?' (NKJP)

b. *Agent jako biorca zlecenia* (NKJP)
agent.NOM.SG as recipient.NOM.SG contract.GEN.SG
'an agent as the contract holder'

c. *Świadczenie zostanie zwrócone kredytodawcy, a kredytobiorca złoży stosowne oświadczenie w terminie.* (NKJP)
benefit.NOM.SG be.FUT.3SG return.PASS.PTCP.3SG credit+LV+giver.DAT.SG and credit+LV+taker.NOM.SG issue.FUT.3SG appropriate.ACC.SG statement.ACC.SG in time
'The benefit will be returned to the lender, and the borrower will issue an appropriate statement in time'

d. *komfortowa sytuacja dla biorców kredytu na cele budownictwa* (NKJP)
comfortable.NOM.SG situation.NOM.SG for recipient.GEN.PL credit.GEN.SG on aim.GEN.PL construction.GEN.SG
'a comfortable situation for people taking credit for housing purposes'

Similarly, the institutionalised compound *licencjodawca* 'licensor' has 167 attestations, while *dawca licencji* (giver licence.GEN) (in all case forms) only nine attestations. There are 301 examples of the lexeme *licencjobiorca* 'licensee' and 17 examples of the NN.GEN combination *biorca licencji* (taker licence.GEN) 'licensee.'[4]

Some examples in (6) demonstrate the occurrence of pairs of morphological compounds and NN.GEN combinations which contain the same non-head constituent (interpreted as the object of action) and either the lexeme *dawca* 'giver, donor' or *biorca* 'taker, recipient' as the head,[5] for

[4] The occurrence of the compounds *pracodawca* (work+LV+giver) 'employer' and *pracobiorca* (work+LV+taker) 'employee' prevents the occurrence of NN.GEN juxtapositions ?*dawca pracy* (giver work.GEN.SG) and ?*biorca pracy* (taker work.GEN.SG).

[5] Potential members of some pairs of compounds ending in *biorca* and *dawca* are not institutionalised. While there is *podatkobiorca* 'tax collector,' there is no ?*podatkodawca* (tax+LV+giver) 'tax payer.' Instead, the suffixal derivative *podatnik* (tax+SUFF) 'tax-payer' is

instance, *kredytodawca – kredytobiorca* and *zleceniodawca – zleceniobiorca* in (6) above. Examples of other pairs of morphological compounds (coined in the second half of the 20th century) are identified by Jadacka (2001: 96) and given in (8).

(8) a. *łapówkodawca* (bribe+LV+giver) 'bribe-giver'
b. *łapówkobiorca* (bribe+LV+taker) 'person who receives a bribe'
c. *usługodawca* (service+LV+giver) 'service provider'
d. *usługobiorca* (service+LV+taker) 'service recipient; user, customer'

The next set of examples shows that synthetic compounds analysed by, among others, Szymanek (2010) and Nagórko (2016) as interfixal-paradigmatic formations can also compete with NN.GEN juxtapositions.[6] The verb stem *nos-/nosz-* 'carry' is nominalised by the paradigmatic affix, that is, the zero morpheme *ø*. Since the stem *-nosz* does not occur as an independent noun, the NN.GEN complex in (9a) is ill-formed. The suffixal noun *roznosiciel* 'distributor, deliverer,' derived from the prefixed verb *roznosić* 'distribute,' can be used, instead. In contrast, the NN.GEN juxtaposition in (9d) sounds very odd as the suffixal noun *nosiciel* 'carrier,' derived from the nonprefixed verb *nosić* 'to carry,' characteristically occurs in medical terminology to denote a person (or an animal) who has inherited a disease and transmits it to other organisms.[7]

Let us also note the ill-formedness of synthetic compounds **boreliozonosz* (Lyme_disease+LV+carry+ø) 'host of the Lyme disease' or **malarionosz* (malaria+LV+carry+ø) 'malaria vector,' since the nominalised stem *-nosz* does not form composite units meaning 'someone who transmits a disease or a virus.'

(9) a. *listonosz* (letter+LV+carry+ø) 'postman, mail carrier'
b. **nosz listów* (carry+ø letter.GEN.PL) (intended as synonymous to 9a)
c. *roznosiciel listów* (deliverer.NOM.SG letter.GEN.PL) 'mail carrier'
d. *roznosiciel paczek* (deliverer.NOM.SG parcel.GEN.PL) 'parcel delivery person'

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used. There exists *prawodawca* (law+LV+giver) 'legislator, law-maker,' but the word *?prawobiorca* (law+LV+taker) is not institutionalised, though it has 80 Google hits.

[6] Cetnarowska (2019: 295) shows that interfixal-paradigmatic compound nouns can compete both with NN.GEN juxtapositions and with quasi-compounds (which consist of combining forms). Compare, for instance, *głośnościomierz* (loud+SUFF+LV+measure+ø) 'volume unit meter,' *miernik głośności* (gauge.NOM.SG volume.GEN.SG) 'volume unit meter' and *audiometr* (audio+meter) 'audiometer'.

[7] Note, however, the occurrence of the NN.GEN juxtapositions *nosiciel wody* (carrier.NOM.SG water.GEN.SG) 'water carrier' (as used in the Bible) and *nosiciel idei rewolucyjnych* (carrier.NOM.SG idea.GEN.PL revolutionary.GEN.PL) 'advocate of revolutionary ideas.'

e. ?*paczkonosz* (parcel+LV+carry+ø) 'parcel delivery person'[8]
f. ?*nosiciel listów* (carrier.NOM.SG letter.GEN.PL) 'mail carrier'
g. *nosiciel wirusa HIV* (carrier.NOM.SG virus.GEN.SG HIV) 'HIV carrier'
h. *nosiciel malarii* (carrier.NOM.SG malaria.GEN.SG) 'malaria vector'
i. **malarionosz* (malaria+LV+carry+ø) 'malaria vector'

Another option of coining a phrasal noun as a synonym to the interfixal-paradigmatic formation *listonosz* 'postman, mail carrier' is to use the NN.GEN combination which contains the agentive noun derived from the verb *doręczyć* 'to deliver,' namely, the noun *doręczyciel* 'delivery man.' When this suffixal derivative is the head of a NN.GEN juxtaposition, the non-head constituent can be complex. For instance, it can be a N+RA unit, as in (10b–c). The use of the NN.GEN construction allows the speaker to make more fine-grained distinctions between types of mail carrier. This would not be possible in the case of synthetic compounds, as shown in (10d–e).

The example in (10f) serves as a reminder that not all NN.GEN strings are phrasal nouns. The string in (10f) is a regular syntactic phrase, as indicated by the presence of the demonstrative adjective *tamten* 'that,' and it can be contrasted with the phrasal nouns in (10a–c).

(10) a. *doręczyciel listów* (deliverer.NOM.SG letter.GEN.PL) 'mail delivery man'
b. *doręczyciel listów zwykłych* (deliverer.NOM.SG letter.GEN.PL common.GEN.PL) 'person who delivers unregistered letterrs'
c. *doręczyciel listów poleconych* (deliverer.NOM.SG letter.GEN.PL registered.GEN.PL) 'person who delivers registered letters'
d. **poleconolistonosz* (registered+LV+letter+LV+carry+ø) (intended as synonymous to 10c)
e. **listopolecononosz* (letter+LV+registered+LV+carry+ø) (intended as synonymous to 10c)
f. *doręczyciel tamtego listu* (deliverer.NOM.SG that.GEN.SG letter.GEN.SG) 'the person who delivered that letter'

[8] The non-institutionalised formation ?*paczkonosz* 'parcel delivery man' has no entry in *Słownik języka polskiego* (SJP PWN online). However, it has eight attestations in NKJP and a Google search returns 525 hits for this lexeme, for instance, *Paczkonosz u nas chodzi osobno od listonosza* 'The times of delivery rounds are different for a postman and for a parcel delivery man here' and *co do paczko- i listonoszy, to paczkonosze mają profit od dostarczenia* 'As for parcel and letter delivery persons, parcel carriers (have an extra) profit from delivering them' (http://wizaz.pl/forum/showthread.php?p=38790173).

In (11), there occur examples of interfixal-suffixal formations with the bound form *-bójca* 'killer' (which can be split into the verb stem *bij-/boj-* 'beat, kill' and the agentive affix *-ca*) as their head. There are corresponding NN.GEN combinations headed by the independent lexeme *zabójca* 'killer, murderer.'

The NN.GEN complexes in (11b, e, h, j) can be treated as phrasal nouns, as demonstrated for (11b) in (11c, 11c′). In contrast, the NN.GEN string which is given in (11f) can be regarded as a regular syntactic phrase.[9]

(11) a. *matkoobójca* (mother+LV+killer) 'matricide'
b. *zabójca matki* (killer.NOM.SG mother.GEN.SG) 'mother-killer, matricide'
c. *zabójcy* *matek* *ustawiają* *się* *w* *kolejce*
killer.NOM.PL mother.GEN.PL stand.PRS.3PL REFL in line.LOC.SG
po *wyrok* (NKJP)
for sentence.ACC.SG
'Mother-killers line up to wait for their sentence.'
c′ *Dożywocie* *dla* *zabójcy* *matki* (Google)
life_sentence.NOM.SG for killer.ACC.SG mother.GEN.SG
'life sentence for a mother-killer'
d. *królobójca* (king+LV+killer) 'regicide'
e. *zabójca króla* (killer.NOM.SG king.GEN.SG) 'king-killer'
f. *zabójca króla Przemysła II* (killer.NOM.SG king.GEN.SG Przemysł.GEN.SG second.GEN.SG) 'the killer of King Przemysł II'
g. *ojcobójca* (father+LV+killer) 'patricide'
h. *zabójca ojca* (killer.NOM.SG father.GEN.SG) 'father-killer, patricide'
i. *bratobójca* (brother+LV+killer) 'fratricide'
j. *zabójca brata* (killer.NOM.SG brother.GEN.SG) 'brother-killer, fratricide'

The pattern of compounds terminating in *-bójca* shows many gaps, and so it appears not to be very productive. For instance, neither the word ?*siostrobójca* 'murderer of a sister' nor ?*rodzicobójca* 'parent killer' have entries in *Słownik języka polskiego* (SJP PWN online). However, a Google search returns 156 hits for ?*siostrobójca* and 55 hits for ?*rodzicobójca*. ?*Siostrobójca* has one attestation and ?*rodzicobójca* 'parent killer' – two attestations in NKJP.

[9] It can be shown, for instance, that the genitive attribute in the NN.GEN (or N+NP.GEN) string is referential and can be an antecedent for a relative pronoun, as in *zabójczyni króla Przemysła II, który był jedynym synem księcia Przemysła I* 'the female killer of king Przemysł II, who was the only son of Duke Przemysł I.'

(12) a. *Siostrobójca* *dostał* *12* *lat*,
sister+LV+killer.NOM.SG receive.PST.3SG twelve year.ACC.PL
strażak – *piroman* – *5* *lat* (NKJP)
fireman.NOM.SG pyromaniac.NOM.SG 5 year.ACC.PL
'The sister's killer was sentenced to 12 years (in prison), the firefighter-pyromaniac to 5 years.'

b. Siostrobójca z Korytowa trafi do
sister+LV+killer.NOM.SG from Korytowo.GEN.SG land.FUT.3SG to
zakładu *psychiatrycznego.*
hospital.GEN.SG psychiatric.GEN.SG
'The sister's killer from Korytowo will go to the mental hospital.'
(www.szczecin.tvp.pl/.../siostrobojca-z-korytowa-trafi-do-zakladu-psychiatrycznego)

c. *Dożywocie* *dla* *rodzicobójcy* *ze*
life_sentence.NOM.SG for parent+LV+killer.GEN.SG from
Starego Bystrego *podtrzymane* (NKJP)
Stare_Bystre.GEN.SG uphold.PASS.PTCP.NOM.SG
'Life imprisonment upheld for a killer of his own parents from Stare Bystre.'

The non-institutionalised compounds ?*cesarzobójca* (emperor+LV+killer) 'killer of an emperor' and ?*prezydentobójca* (president+LV+killer) 'killer of a president' can be found in blogs or newspaper articles.

(13) a. *Cesarzobójca nie pracował sam?*
'The killer of the emperor didn't work on his own?'
(galnetpl.blogspot.com/3301/08/)

b. *Prezydentobójca nawet nie wiedział, jak wygląda Narutowicz.*
'The killer of the president did not even know what Narutowicz looked like.'
(https://plus.gazetakrakowska.pl/.../od-popiela-do-jaruzelskiego-zamachy-jak-chleb-po...)

Moreveover, there are potential but unattested morphological compounds with *-bójca*, which are replaced by the NN.GEN complexes in (14).

(14) a. *zabójca premiera* (killer.NOM.SG prime_minister.GEN.SG) 'killer of the Prime Minister', vs. ?*premierobójca* (prime_minister+LV+killer)

b. *zabójca dyrektora* (killer.NOM.SG manager.GEN.SG) 'killer of a/the manager' vs. ?*dyrektorobójca* (manager+LV+killer)

c. *zabójca teściowej* (killer.NOM.SG mother_in_law.GEN.SG) 'killer of a/the mother-in-law' vs. ?*teściowobójca* (mother_in_law+LV+killer)

Szymanek (2010: 217) observes that "[c]ompounding accounts for a relatively small section of the Polish lexicon of morphologically complex words, compared to a language like English." He adds, however, that certain types of compounds "have shown a remarkable spread." The data presented above can potentially be perceived as an indication that the formation of synthetic compounds containing selected deverbal head constituents (e.g., *pisarz, -bójca, biorca, dawca*) is a fairly productive process, and that is why it gives rise to novel formations and hapax legomena.[10]

There is, though, an alternative way of analysing the data in (12–14) above. Synthetic compounds proper terminating in the above-mentioned words (or stems) can be regarded as semantic niches, that is, "groups of words (subsets of a morphological category) kept together by formal and semantic criteria and extendable through analogy"[11] (Hüning 2009: 184).

Jadacka (2001: 96, 98) notes the occurrence of series of composite nouns ending in a particular word, such as *biorca*, *dawca*, *znawca*, or in a particular nominalised verb stem, such as *-pis*, *-mierz*, *-rób*, *-zjad*. Synthetic compounds terminating in other sequences, for example, the sequences *-krad, -płuk*, or *-tłuk*, are less frequent. For instance, while there exists the compound *koniokrad* 'horse thief,' there is no compound **smartfonokrad* 'smartphone thief' or **samochodokrad* 'car thief.' Instead, NN.GEN combinations are used, as in *złodziej samochodów* (thief car.GEN.PL) 'car thief' and *złodziej smartfonów* (thief smartphone.GEN.PL) 'smartphone thief.' However, even those rarely used patterns can give rise to playful formations, such as *?czasokrad* (time+LV+steal+ø) 'time killer, an activity that helps the time go by.'

(15) *Mówią* *o* *nim* *"czasokrad"* *lub* *nawet*
say.PRS.3PL about him/it time+LV+steal+ø or even
"kretynomierz". *Dla* *namiętnych* *telewidzów*
idiot+LV+measure+ø for avid.GEN.PL tv_viewer.GEN.PL
'They call him/it "time-killer" or even "idiot-meter." For avid TV viewers.'(NKJP)

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[10] As mentioned in Chapter 3, Jadacka (2001, 2010) and Waszakowa (2010) point to the increase in the number of novel composite expressions in Polish. However, such novel compounds include mainly interfixless NN combinations and compounds containing neoclassical combining forms (e.g., *euro-*, *eko-*, *tele-*).

[11] Konieczna (2012) provides numerous examples of analogically formed English compounds (e.g., *adware* 'software used in advertising') and analogically modelled English blends (e.g., *intexticated* 'distracted by texting when driving a car'). She discusses the treatment of analogy in Construction Morphology.

The playfulness of the neologisms in (15), such as *czasokrad* 'time-killer,' confirms the observation made by Haspelmath (2002: 100–101), who suggests that "the less productive a rule is, the more will a neologism be noticed and the fewer unconscious neologisms will be formed."

Synthetic compounds denoting actions and processes are less common than those denoting agents or instruments. This is shown by the non-institutionalised status of potential compounds containing action nouns in (16), as compared to the acceptability of corresponding compounds (mentioned ealier) terminating in *dawca*, *biorca*, *-nosz*, or *-mierz*.

(16) a. ?*bajkopisanie* (fable+LV+writing) 'fable-writing' (cf. *bajkopisarz* 'fable writer')
b. ?*powieściopisanie* (novel+LV+writing) 'novel-writing' (cf. *powieściopisarz* 'novelist')
c. ?*krwiodawanie* (blood+LV+giving) 'blood-giving' (cf. *krwiodawca* 'blood donor')
d. ??*zleceniobranie* (contract+LV+taking) 'accepting a contract or contracts' (cf. *zleceniobiorca* 'contract holder')

Dictionaries of Polish list established nominalisations ending in *-stwo*, which are related semantically to agent nouns. However, they are not action nouns proper, and they denote activities associated with the corresponding compound agentive nouns, for instance, *bajkopisarstwo* 'fable writing, the activity of/the profession of a fable writer.' Thus, they are not the exact synonyms of the non-institutionalised compounds in (16).[12]

(17) a. *bajkopisarstwo* 'fable writing' (from *bajkopisarz* 'fabulist, fable writer')
b. *powieściopisarstwo* 'novel writing' (from *powieściopisarz* 'novelist')
c. *krwiodawstwo* 'blood donation' (from *krwiodawca* 'blood donor')

The non-institutionalised action nouns in (16) are, as a matter of fact, attested in Google searches (apart from ??*zleceniobranie* 'accepting a contract or contracts'). There are 5,520 hits for *bajkopisanie* 'fable writing,' 464 hits for *powieściopisanie* 'novel writing,' and six hits for *krwiodawanie* 'donating blood.'

(18) a. *my z Brosem uczestniczymy w „krwiodawaniu"* (Google)
'Me and Bros participate in (the action of) donating blood.'

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[12] Observe that the compound noun *bajkopisarstwo* could not replace the non-institutionalised formation ?*bajkopisanie* (fable+LV+writing) in such contexts as ?*wieczorne bajkopisanie (*wieczorne bajkopisarstwo*) 'evening fable-writing.'

b. *rodzinne bajkopisanie* 'family fable writing'
c. *Egoizm na receptę czyli letnie powieściopisanie z Marią*
'Prescribed egoism or summer novel-writing with Maria'

The action nouns in (19) can be replaced by NN.GEN combinations, which will lack the jocular flavour of the compound nouns in (18).

(19) a. *uczestniczymy w oddawaniu krwi*
'we participate in (the action of) donating blood'
b. *rodzinne pisanie bajek* 'family fable writitng'
c. *letnie pisanie powieści z Marią* 'summer novel-writing with Mary'

The interfixal-paradigmatic compound nouns terminating in *-chron*, *-mierz*, *-ciąg*, or *-krad* do not have corresponding established action nouns ending in *-nie/-cie* suffixes.

(20) a. ?*piorun-o-chronienie* (ligthning+LV+protecting) 'protecting from lightning'
(cf. *piorunochron* 'lightning conductor')
b. ?*wod-o-mierzenie* (water+LV+measuring) 'water metering'
(cf. *wodomierz* 'water meter')
c. ?*wod-o-ciągnięcie* (water+LV+installing) 'installing water lines, building water mains' (cf. *wodociąg* 'water mains')
d. ?*koni-o-kradzenie* (horse+LV+stealing) 'stealing horses'
(cf. *koniokrad* 'horse thief')

The NN.GEN or N+PP phrasal combinations in (21) would normally be employed instead of the compounds in (20).

(21) a. *chronienie przed piorunami* 'protecting from lightning'
(or: *ochrona przed piorunami* 'protection from lightning')
b. *mierzenie wody* (measuring.NOM.SG water.GEN.SG) 'measuring water use'
c. *ciągnięcie wody* (installing.NOM.SG water.GEN.SG) 'installing water utilities'

Some of the compound nouns mentioned as potential formations in (20), though not entered in dictionaries, can occasionally be attested as hapax legomena in the NKJP corpus and/or as playful neologisms occurring on various websites and blogs.[13]

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[13] *Piorunochronienie* (ligthning+LV+protecting) – one Google hit; *koniokradzenie* (horse+LV+stealing) – four Google hits and one NKJP attestation; *wodociągnięcie* (water+LV+installing) – four Google hits.

(22) a. *Piorunochronienie i czarnoksięskie akcenty*
ligtning+LV+protecting.NOM.SG and magician.RA.NOM.PL touch.NOM.PL
też mi się podobają…
also me.DAT REFL please.PRS.3PL
'I like the lightning protection and the magician's touches.'
(fotoforum.gazeta.pl/72,2,638,42939252,42939252,0,2.html?v=2)

b. *Ammelio: gratuluję doboru obuwia-*
Ammelia.VOC.SG congratulate.PRS.1SG choice.GEN.SG footwear.GEN.SG
nadaje się idealnie na nocne koniokradzenie
suit.PRS.3SG REFL ideally on night.RA.ACC.SG horse+LV+stealing.ACC.SG
'Ammelia: I congratulate you on your choice of footwear: it is ideal for the night horse-stealing.'
(https://m.trojmiasto.pl/…/ZNAJDE-W-TROJMIESCIE-OSOBY-KTORE-CECHUJA-SIE-i)

c. *Centrum wodociągnięcia, lub jak kto*
centre.NOM.SG water+LV+installing.NOM.SG or how who
woli: dyspozytornia.
prefer.PRS.3SG control_room.NOM.SG
'The centre of water utilities installation or, as you prefer: the control room.'
(szymon-spandowski.blogspot.com/2012/08/woczykije-woczykije.html)

There are not many institutionalised examples of synthetic compounds proper which end in the action suffixes *-anie*, *-enie*, and *-cie*. They are exemplified in (23).[14]

(23) a. *grzybobranie* (mushroom+LV+taking) 'mushroom picking'
b. *świniobicie* (pig+LV+killing) 'pig slaughter'
c. *gradobicie* (hail+LV+beating) 'hailstorm'
d. *spadkobranie* (inheritance+LV+taking) 'succession; inheritance of property bywill or descent'
e. *miodobranie* (honey+LV+taking) 'honey harvest'

Google searches testify to the occurrence of non-institutionalised compounds proper which are coined by analogy to *grzybobranie* 'mushroom picking,' such as *podatkobranie* (tax+LV+taking) 'tax paying' and *kredytobranie* (credit+LV+taking) 'taking a loan.' It needs to be emphasised that neither the established formations in (23) nor the non-institutionalised *-nie/-cie* compounds mentioned in the previous sentence exhibit the sense

[14] See Kurzowa (1976) and Kolbusz-Buda (2014) for more examples of synthetic compounds in Polish which denote events, such as *sianokosy* (hay+LV+cutting) 'haymaking.'

'the process or action of V-ing.' They denote events or periods when a particular event takes place. The process reading is associated with corresponding NN.GEN combinations, for instance, *bicie świni* (slaughtering.NOM.SG pig.GEN.SG) or *zbieranie miodu* (collecting.NOM.SG honey.GEN.SG). The compounds in (23) can be regarded as referential nominals in the terminology used by Alexiadou and Grimshaw (2008). They are countable, as shown by the phrases *ostatnie świniobicia* (recent.NOM.PL pig+LV+slaughter.NOM.PL) and *kolejne miodobrania* (next.NOM.PL honey+LV+taking.NOM.PL), in contrast to process-denoting NN.GEN combinations, as illustrated by **kolejne zbierania miodu* (next.NOM.PL collecting.NOM.PL honey.GEN.SG).

Some synthetic deverbal compounds in Polish, for instance, names of instruments or people in (24), should be regarded as exocentric formations. The semantic head, namely, 'instrument (for pulling sb's hand/for counting groats)' or 'person (who licks sb's paw),' is not overtly expressed in them.

(24) a. *wyrw-i-rącz-k-a* (extract+LV+hand.DIM+NOM.SG) 'rope tow, T-bar lift'
b. *licz-y-krup-a* (count+LV+groat+NOM.SG) 'skinflint'
c. *liż-y-łap-a* (arch.) (lick+LV+paw+NOM.SG) 'toady, flatterer' (cf. *lizus* 'toady')

The nouns in (24) do not compete with potential NN.GEN combinations, since the latter (as provided in 25) would be expected to have a transparent (non-figurative) reading[15] and would lack the emotional colouring characteristic of the formations in (24). Moreover, while (24b) denotes a type of a person, (25b) is a name of a (hypothetical) instrument.

(25) a. ?*wyrywacz rąk* (extractor.NOM.SG hand.GEN.PL) 'hand-extractor'
b. ?*licznik krup* (counter.NOM.SG groat.GEN.PL) 'groat counter'
c. ?*lizacz łapy* (licker.NOM.SG paw.GEN.SG) 'person, animal or instrument licking a paw or paws'

Thus, the process of forming synthetic compounds and the process of coining NN.GEN juxtapositions compete and complement each other.

5.2 Attributive compounds and phrasal nouns

This section will be devoted to the competition between attributive morphological compounds and phrasal nouns. Let us first look at A+N mor-

[15] It needs to be admitted that some NN.GEN have figurative meaning, for instance, *łamacz serc* (breaker.NOM.SG heart.GEN.PL) 'heart-breaker' and *łamacze lodów* (breaker.NOM.PL ice.GEN.PL) 'ice breakers.'

phological compounds which belong to the attributive endocentric type. They are potentially synonymous to the A+N strings in (26).

(26) a. *błogostan* (blissful+LV+state) 'blessedness, blissfulness, complacency, welfare'
b. *błogi stan* (blissful state) 'blissful state'
c. *dobrobyt* (good+LV+being) 'welfare, well-being, prosperity'
d. *dobry byt* (good being/existence) 'good existence'
e. *żywopłot* (live+LV+fence) 'hedge'
f. *żywy płot* (live fence) 'living fence'
g. *graniastosłup* (angular+LV+pole) 'prism, a polyhedron with an n-sided polygonal base'
h. *graniasty słup* (pole angular) 'angular pole, a pole having sharp edges'

Expressions in (26a) and (26b) have roughly the same interpretation, as they can be paraphrased as 'the state of blissfulness.' The compound in (26c) and the AN string in (26d) are fairly similar in meaning as well (and are paraphrasable as 'good existence, well-being'), though the compound *dobrobyt* exhibits the additional sense 'prosperity.' There is a greater contrast between the interpretation of *żywopłot* and *żywy płot* in (26e) and (26f). The A+N phrasal combination in (26f) is fully compositional, while the compound *żywopłot* denotes a fence which consists of plants. It can only metaphorically be paraphrased as a 'living fence.' The meaning of the compound *graniastosłup* 'prism' in (26g) is more specific than the meaning of the expression in (26h). It is a solid geometrical figure, and not a pole with sharp edges. It needs to be emphasised that the compound nouns in (26a, c, e, g) are naming units which denote some fixed concepts, whereas the A+N strings in (26b, d, f, h) are regular syntactic phrases (and not phrasal nouns, which are the focus of this and the previous chapters).

In (27), there are juxtaposed NN compounds proper and N+RA phrasal nouns. The morphological compounds in (27a, c, f) are of attributive type, and they can be roughly paraphrased as 'a type of Y which has some relationship to X.' The compound *parostatek* in (27a) can be given the general paraphrase 'a type of ship which has something to do with steam,' namely, a type of ship powered by steam. It is synonymous to the N+RA combination in (27b). The compound in (27c) has a synonymous phrasal noun given in (27d). However, the N+RA expression in (27d) has a different head constituent from the compound in (27c), that is, the word *lokomotywa* 'engine' instead of *wóz* 'car, wagon.' The N+RA combination in (27e), which consists of basically the same elements[16] as

[16] The compound *elektrowóz* 'electric locomotive' contains the bound stem *elektr-*, which lacks the adjective-forming suffix *-ycz-n-* and the inflectional ending *-y*. The N+RA combination contains the fully inflected adjective *elektryczny* 'electric.NOM.SG.'

the compound in (27c), denotes a different type of artefact, that is, not a railway vehicle but a car which uses electric energy stored in rechargeable batteries (also referred to as *samochód elektryczny*). The compound and the N+RA juxtaposition in (27f) and (27g) denote different entities, namely, a kind of device producing electromotive force (27f) and a kind of stimulus (27g).

(27) a. *parostatek* (steam+LV+ship) 'paddlesteamer, steamboat'
b. *statek parowy* (ship steam.RA) 'steamboat, steamship'
c. *elektrowóz* (electr+LV+car) 'electric locomotive'
d. *lokomotywa elektryczna* (locomotive electric) 'electric locomotive'
e. *wóz elektryczny* (car electric) 'electric car' (e.g., *wóz strażacki elektryczny* 'electric fire truck')
f. *elektrobodziec* (electr+LV+stimulus) 'electromotor'
g. *bodziec elektryczny* (stimulus electric) 'electric stimulus'

The examples above indicate that it is not easy to find attributive endocentric AN or NN compounds and corresponding synonymous NA phrasal nouns. They tend to evolve different readings.

In the case of pairs consisting of AN attributive exocentric compounds and corresponding NA phrasal nouns, a considerable difference in meaning is expected to occur.

(28) a. *prostokąt* (straight+LV+angle) 'rectangle'
b. *kąt prosty* (angle straight) 'right angle'
c. *dolnopłat* (low+LV+wing) 'low-wing plane'
d. *płat dolny* (wing low) 'low wing'
e. *grubodziób* (thick+LV+beak) 'hawfinch'
f. *dziób gruby* (beak thick) 'type of beak which is thick'
g. *równoległobok* (parallel+LV+side) 'parallelogram'
h. *bok równoległy* (side parallel) 'parallel side'
i. *krótkoszpon* (short+LV+claw) 'harrier hawk'
j. *szpon krótki* (claw short) 'short claw'

The NA combinations in (28) have a fairly transparent meaning. The posthead position of the adjective signals the 'kind' reading of those phrasal nouns. For instance, *szpon krótki* (claw short) is interpreted as denoting one of various types of claws.

In contrast, the compounds in (28) represent possessive compounds (cf. Olsen 2001). They lack overt semantic heads and denote entities which exhibit the features described by the compound's constituents, for instance, *prostokąt* 'a geometrical figure with right angles,' *krótkoszpon*

'a type of bird with short claws,' and *grubodzióbˈ* 'a type of European bird with a strong beak.'

The compounds in (29) are interfixal-paradigmatic formations. The corresponding NA or AN expressions call for a different interpretation, as shown below. The ones in (29b, d, f) can be treated as regular syntactic phrases, while the N+RA combination in (29h) is a phrasal noun with a 'kind' reading (i.e., it denotes a type of feet).[17]

(29) a. *czarnoziem* (black+LV+earth+ø) 'chernozem'
b. *czarna ziemia* (black earth) 'black earth'
c. *czarnowron* (black+LV+crow+ø) 'carrion crow'
d. *czarna wrona* (black crow) 'crow which is black'
e. *białodrzew* (white+LV+tree+ø) 'white poplar'
f. *białe drzewo* (white tree) 'tree which is white'
g. *płaskostopie* 'flat feet, platypodia'
h. *stopa płaska* (foot flat) 'flat foot'

The NA construction schema allows the speaker to coin easily a series of naming units. This is shown for a selection of attested types of beaks in (30).

(30) a. *dziób klinowy* (beak wedge-shaped) 'spheroidal rostrum'
b. *dziób sondujący* (beak probing) 'probing beak'
c. *dziób filtrujący* (beak filtering) 'filtering beak'
d. *dziób łyżkowaty* (beak spoon-shaped) 'spoon-shaped beak'

Exocentric AN or NN compounds are not formed in a regular manner (since there may be no animal to be named which possesses the property in question). There are no attested compounds **klinodziób* (wedge+LV+beak), **sondodziób* (probe+LV+beak), **flitrodziób* (filter+LV+beak), or **łyżkodziób* (spoon+LV+beak), corresponding to the N+A juxtapositions above, in spite of the existence of *grubodziób* 'hawfinch.'

In (31), there are listed some attributive phrasal lexemes consisting of nouns which agree in case. In Chapter 4, they were referred to as comparative juxtapositions, or similative juxtapositions, as they involve a metaphor-like attribution of some property of the modifier to the head constituent.

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[17] Strictly speaking, the N+A juxtaposition in (29h) can either denote a type of feet, or a physical condition which stems from having flat feet. Let us add that it is feasible to use the A+N strings in (29b) and (29d) in the reverse order, namely, *ziemia czarna* (earth black) and *wrona czarna* (crow black), to refer to some type of earth or some subspecies of crows. Such N+A combinations are not institutionalised, though, in contrast to *stopa płaska* (foot flat).

(31) a. *praca marzenie* (work.NOM.SG dream.NOM.SG) 'a dream of a job'
(cf. **marzeniopraca*)
b. *hotel widmo* (hotel.NOM.SG ghost.NOM.SG) 'ghost hotel, i.e., a hotel which does not exist or which is a short-time rental with no staff and no front desk'
(cf. **widmohotel*)
c. *hotel ruina* (hotel.NOM.SG ruin.NOM.SG) 'hotel in a very bad condition'
(cf. **ruinohotel*)
d. *kobieta guma* (woman.NOM.SG rubber.NOM.SG) 'female contortionist'
(cf. **gumokobieta*)
e. *trener legenda* (coach.NOM.SG legend.NOM.SG) 'legendary coach'
(cf. **legendotrener*)
f. *samochód marzenie* (car.NOM.SG dream.NOM.SG) 'a dream of a car'
(cf. **marzeniosamochód*)

There are no corresponding compounds proper, as is shown by the ill-formedness of the words in brackets, for instance, **marzeniopraca* (dream+LV+work.NOM.SG). Morphological compounds do not represent this pattern. An alternative expression of NN juxtapositions with *marzenie* as the right-hand constituent involves another type of phrasal nouns, namely, NN.GEN combinations, such as *praca marzeń* (work.NOM.SG dream.GEN.PL) 'a dream of a job' and *samochód marzeń* (car.NOM.SG dream.GEN.PL) 'a dream of a car.'

In Chapter 5, several groups of NN phrasal nouns were mentioned which belong to the intermediate zone between coordinate and attributive juxtapositions. They are treated in prescriptive sources as attributive ones; hence, the recommended spelling is the one involving separate orthographic words. However, they share features with coordinate compounds, such as semantic compositionality and reversibility. They will be discussed here very briefly, since, as will be shown below, they do not compete (or compete rarely) with compounds proper.

One class of such transition-zone combinations includes the NN juxtapositions in (32). They denote people, animals, or artefacts which belong to intersections of two sets of entities and can be paraphrased as 'both X and Y,' for instance, *żona męczennica* 'both a wife and a martyr.' Corresponding morphological compounds are not attested and they sound strange (regardless of the order of their consituents).

(32) a. *żona męczennica* (wife.NOM.SG female_martyr.NOM.SG) 'wife who has too much work and puts everyone else's needs above her own' (**żonomęczennica*, **męczennicożona*)
b. *nauczyciel emeryt* (teacher.NOM.SG retiree.NOM.SG) 'retired teacher' (**nauczycieloemeryt*, **emerytonauczyciel*)
c. *pies przewodnik* (dog.NOM.SG guide.NOM.SG) 'guide dog' (**psoprzewodnik*, **przewodnikopies*)
d. *statek przetwórnia* (ship.NOM.SG processing_plant.NOM.SG) 'factory ship' (**statkoprzetwórnia*, **przetwórniostatek*)

For the NN combinations *wagon cysterna* (wagon.NOM.SG tank.NOM.SG) 'rail tanker' and *samochód cysterna* (car.NOM.SG tank.NOM.SG) 'tanker, tank truck,' which seem to belong to the same semantic class of NN juxtapositions as *statek przetwórnia* (ship.NOM.SG processing_plant.NOM.SG) 'factory ship,' it is possible to come across isolated instances of corresponding morphological compounds. There are six occurrences of the lexeme *cysternowagon* (tank+LV+wagon) 'rail tanker' and seven hits for *cysternosamochód* (tank+LV+car) 'tanker, tank truck' found in a Google search.

(33) *Instalacja obejmuje rozładunek mączki wapiennej z cysternowagonów oraz cysternosamochodów.*
'The installation includes the unloading of limestone flour from railer tanks or from tank trucks.'
(www.biprocemwap.com.pl/realizacje/biezace_inwestycje/...i...dla.../idn:25.html)

Another class of transition-zone attributive/coordinate NN combinations contains female names of professions, with the constituent *kobieta* 'woman.' They are reversible, as shown in (34a–b). Corresponding morphological compounds, such as **kobietoszef* or **szefokobieta*, are unacceptable.

(34) a. *kobieta lekarz* (woman.NOM.SG physician.NOM.SG) 'female physician' or: *lekarz kobieta* (physician.NOM.SG woman.NOM.SG) 'female physician' (cf. **kobietolekarz*, **lekarzokobieta*)
b. *kobieta kierowca* (woman.NOM.SG driver.NOM.SG) 'woman driver' or: *kierowca kobieta* (driver.NOM.SG woman.NOM.SG) 'woman driver' (cf. **kierowcokobieta*, **kobietokierowca*)
c. *kobieta szef* (woman.NOM.SG boss.NOM.SG) 'female boss' (cf. **kobietoszef*, **szefokobieta*)
d. *kobieta budowlaniec* (woman.NOM.SG construction_worker.NOM.SG) 'female construction worker' (cf. **kobietobudowlaniec*, **budowlańcokobieta*)

The third class of intermediate-zone NN units, discussed in Chapter 4, are reversible expressive combinations. They cannot be replaced by morphological compounds, as shown in (35).

(35) a. *dyrektor cham* (manager.NOM.SG lout.NOM.SG) 'a lout of a driver' (**dyrektorocham*, **chamodyrektor*)
b. *żołnierz oferma* (soldier.NOM.SG klutz.NOM.SG) 'a klutz of a soldier' (**żołnierzooferma*, **ofermożołnierz*)
c. *brat fajtłapa* (brother.NOM.SG wimp.NOM.SG) 'a wimp of a brother' (**bratofajtłapa*, **fajtłapobrat*)
d. *idiota kierowca* (idiot.NOM.SG driver.NOM.SG) 'an idiot of a driver' (**idiotokierowca*, **kierowcoidiota*)

The next section is devoted to the comparison of NN compounds and NN combinations which are regarded (by prescriptive sources) as coordinate.

5.3 Coordinate compounds and phrasal nouns

Coordinate compounds are divided by Renner (2008) into three semantic classes: multifunctional, hybrid, and additive ones. When discussing the competition between coordinate compounds proper and coordinate NN juxtapositions in Polish, I will pay attention to their semantic types.

Multifunctional coordinate units in (36–37) are represented by NN juxtapositions (whose constituents agree in case) as well as by synonymous NN compounds proper. The composite units in (36–37) denote people who perform two functions (e.g., the profession of a bartender and a waiter), those in (38) refer to places with two functions, and those in (39) denote objects with two functions (or artefacts showing properties of two entities).

(36) a. *barmani kelnerzy* (bartender.NOM.PL waiter.NOM.PL) 'waiter-bartenders'
b. *kelnerzy barmani* (waiter.NOM.PL bartender.NOM.PL) 'waiter-bartenders'
c. *barmanokelnerzy* (bartender+LV+waiter.NOM.PL) 'waiter-bartenders'
d. ?*kelnerobarmani* (waiter+LV+bartender.NOM.PL) 'waiter-bartenders'

(37) a. *chłopi-robotnicy* (peasant.NOM.PL farmer.NOM.PL) 'peasant farmers who work in a factory'
b. *chłoporobotnicy* (peasant+LV+farmer.NOM.PL) 'peasant farmers who work in a factory'

(38) a. *klub-kawiarnia* (club.NOM.SG café.NOM.SG) 'club and café, café-club'
b. *klubokawiarnia* (club+LV+café.NOM.SG) 'club and café, café-club'
c. *klasa-pracownia* (class.NOM.SG workshop.NOM.SG) 'classroom'
d. *klasopracownia* (class+LV+workshop.NOM.SG) 'classroom'

(39) a. *spódnica-spodnie* (skirt.NOM.SG trouser.NOM.PL) 'skirt trousers, cullotes'
b. *spódnicospodnie* (skirt+LV+trouser.NOM.PL) 'skirt trousers, cullotes'
c. *półka-tapczan* (shelf.NOM.SG couch.NOM.SG) 'wall bed'
d. *półkotapczan* (shelf+LV+couch.NOM.SG) 'wall bed'
e. *stół-ława* (table.NOM.SG bench.NOM.SG) 'coffee table'
f. ławostół (bench+LV+table.NOM.SG) 'coffee table'

It needs to be added that until the 1980s, compounds proper with the coordinate interpretation were regarded as ill-formed by Polish linguists. Klemensiewicz (1969) argued that the pattern of compounds proper should be reserved for determinative constructions (such as attributive or subordinate composite units). Coordinate compounds proper, such as *chłoporobotnik* 'peasant farmer who works in a factory,' *klasopracownia* 'classroom,' and *klubokawiarnia* 'café-club,' were rejected, while the corresponding juxtapositions *chłop-robotnik* (peasant.NOM.SG worker.NOM.SG), *klasa-pracownia* (class.NOM.SG workshop.NOM.SG), and *klub-kawiarnia* (club.NOM.SG café.NOM.SG) were recommended. Speakers of Polish did not follow such prescriptive principles, as compounds proper are more economical due to the occurrence of only one inflectional ending word-finally. One can compare, in this respect, the juxtaposition *chłopami-robotnikami* (INS.PL) and the compound *chłoporobotnikami* (INS.PL), the latter form being one syllable shorter.

Although, as observed by Jadacka (2001: 145), the negative attitude to coordinate compounds proper is a thing of the past, this traditional preference may be partly responsible for a greater number of NN juxtapositions than compounds proper among multifunctional composite units.

The following NN juxtapositions (with the multifunctional interpretation) have no corresponding institutionalised compounds proper. The morphological compounds in (40b, d, f, h, j) and (41) are not attested in the NKJP corpus. The formation in (40j), that is, *wokalistogitarzysta* 'vocalist and guitarist,' has 16 occurrences in web texts, *stolikobiurko* 'table and desk,' three occurrences, while *pufofotel* 'pouffe and armchair; beanbag chair' in (41d), as many as 256 occurrences.[18] Google searches for the remaining compounds proper in (40) and for (41b) bring only single hits.

[18] The compound *pufofotel* has been recognised as a new lexical item at the website *Obserwatorium Językowe Uniwersytetu Warszawskiego. Najnowsze Słownictwo Polskie* (http: nowewyrazy.uw.edu.pl/haslo/pufofotel.html; Bańko et al. 2014).

(40) a. *reżyser-producent* (director.NOM.SG producer.NOM.SG) 'film director and producer'
b. ?*reżyseroproducent* (director+LV+producer.NOM.SG) 'film director and producer'
c. *modelka-aktorka* (female_model.NOM.SG actress.NOM.SG) 'model and actress, model-turned-actress'
d. ?*modelkoaktorka* (female_model+LV+actress.NOM.SG) 'model and actress, model-turned actress'
e. *aktor-polityk* (actor.NOM.SG politician.NOM.SG) 'actor-politician, actor-turned politician'
f. ?*aktoropolityk* (actor+LV+politician.NOM.SG) 'actor-politician, actor-turned-politician'
g. *aktor-reżyser* (actor.NOM.SG director.NOM.SG) 'actor-director, actor-turned-director'
h. ?*aktororeżyser* (actor+LV+director.NOM.SG) 'actor-director, actor-turned director'
i. *wokalista-gitarzysta* (vocalist.NOM.SG guitarist.NOM.SG) 'vocalist-guitarist, guitar-playing singer'
j. ?*wokalistogitarzysta* (vocalist+LV+guitarist.NOM.SG) 'vocalist-guitarist'

(41) a. *pufa-kufer* (ottoman.NOM.SG trunk.NOM.SG) 'ottoman storage chest'
b. *?pufokufer* (ottoman+LV+trunk.NOM.SG) 'ottoman storage chest'
c. *pufa-fotel* (pouffe.NOM.SG armchair.NOM.SG) 'beanbag chair'
d. *?pufofotel* (pouffe+LV+armchair.NOM.SG) 'beanbag chair'
e. *stolik-biurko* (table.NOM.SG desk.NOM.SG) 'desk table combination'
f. *?stolikobiurko* (table+LV+desk.NOM.SG) 'desk table combination'

Illustrative examples of the novel coordinate compounds from (40–41) are given in (42).

(42) a. *Znamienne, że śledząc biografię w/w reżyseroproducenta można zauważyć jego odwieczne zamiłowanie do popu i tandety* (1 attestation)
'It is significant that when tracking the biography of the above-mentioned director-producer one can notice his long-time passion for pop and trash.'
(www.startrek.pl › USS Phoenix forum › Star Trek)
b. *Narzeczona Rubika (co za nazwisko) nazywa się Paskudzka a Paskuda to modelkoaktorka*. (1 attestation)
'Rubik's fiancée (what a surname) is called Paskudzka and Paskuda is (the name of) a model-actress.'
(www.montypython.fora.pl/absurd,10/najbardziej-pokrecone-nazwiska,56-45.html)

c. *To są czasy pozorantów i doskonałych aktoropolityków*. (1 attestation)
'These are the times of impostors and excellent actor-politicians (actors-turned politicians).'
(https://zmianynaziemi.pl/.../sluzby-usa-ostrzegaja-grozba-niszczacego-ataku-w-cyberp)

d. *A mając skandynawskie odchylenie zaznaczę, że imię i nazwisko diabelskiego wokalistogitarzysty brzmi bardzo, ale to bardzo nowozelandzko*. (16 attestations)
'And, having a Scandinavian bias, I will point out that the first name and surname of this diabolic vocalist-guitarist sounds very, very much New Zealand-like.'
(muzycznyzbawicielswiata.blogspot.com/.../his-masters-voice-devils-blues-st-2017.htm...)

e. *I aż się dziwię, od czasu do czasu, gdy gdzieś, ktoś, wspomni, że to film Eastwooda, taki niepodobny do pozostalych dzieł tego aktororeżysera*. (1 attestation, no attestation for **reżyseroaktor*)
'And I am surprised, from time to time, when somewhere someone remarks that this is a film by Eastwood, which is so unlike the remaining works by this actor-director.' (jancioblotnik.blox.pl/2009/10/Polnoc-w-ogrodzie-dobra-i-zla-rez-Clint-Eastwood.html)

f. *Nasz nowy nabytek (i nie chodzi o kota) Piękny pikowany pufo-kufer* (1 attestation)
'Our new purchase (and I don't mean the cat). A beautiful quilted ottoman storage chest.' (www.thepicta.com/tag/pikowany)

g. *Nowy pufofotel duży z pojemnikiem*
'a new large beanbag chair with a storage box.'
(https://sprzedajemy.pl › ... › Fotele i pufy › Fotele i pufy Czerwionka-Leszczyny)

h. *Meble (poza stolikobiurkiem) są ze starego mieszkania i musiały się dostosować.*
'Items of furniture (apart from the desk-table combination) are from the old flatand they had to adapt.'
(fotoforum.gazeta.pl/72,2,35,106323562.html?v=2&wv.x=1)

For some other multifunctional juxtapositions denoting professions or items of furniture, potential compounds proper have no attestations, for instance, ??*aktorotancerz* 'actor and dancer' (cf. *aktor-tancerz*), ??*reżyseroaktor* 'actor and director' (cf. *reżyser-aktor*), or ??*sekretarzykobiurko* 'escritoire desk' (cf. *biurko-sekretarzyk*).

Items categorised as additive coordinate compounds "designate entities formed by the juxtapositions, and not the fusion, of the denotata of the constituents" (Arnaud and Renner 2014: 11). In other words, the

subparts of the objects denoted by additive compounds (i.e., additional units in Arnaud and Renner's terminology) can be easily distinguished. Arnaud and Renner (2014: 11) regard *fridge-freezer* and *tractor-trailer* as examples of English additive compounds. Multifunctional compounds are sometimes difficult to separate from the additive type. Arnaud and Renner (2014: 12) conclude that compounds such as *washer-dryer* "will be classified as additionals in case of the juxtaposition of the *denotata* and as multifunctionals in case of fusion of the *denotata*." A *washer-dryer* may either be a "stackable" combination of a separate washer and a dryer (then it can be treated as an additive type), or it may denote a combo, in which a washer and a dryer are combined into a single cabinet (and this would count as a multifunctional type).

Examples of Polish additive composite units are given in (43). As mentioned by authors of Polish dictionaries (e.g., SJP PWN), such composite lexemes can take the form of either a juxtaposition (as in 43a) or a compound proper (in 43b).

(43) a. *pralka-suszarka* (washer. NOM.SG dryer.NOM.SG) 'washer-dryer'
b. *pralkosuszarka* (washer+LV+dryer.NOM.SG) 'washer-dryer'
c. *drukarka-kopiarka* (printer.NOM.SG copier.NOM.SG) 'both a printer and a copier'
d. *drukarkokopiarka* (printer+LV+copier.NOM.SG) 'both a printer and a copier'
e. *pralka-wirówka* (washer.NOM.SG spin_dryer.NOM.SG) 'rotary washing machine'
f. *pralkowirówka* (washer+LV+spin_dryer.NOM.SG) 'rotary washing machine'
g. *ampułka-strzykawka* (ampoule.NOM.SG syringe.NOM.SG) 'prefilled syringe'
h. *ampułkostrzykawka* (ampoule+LV+syringe.NOM.SG) 'prefilled syringe'
i. *chłodziarka-zamrażarka* (fridge.NOM.SG frezer.NOM.SG) 'fridge-freezer'
j. *chłodziarkozamrażarka* (fridge+LV+freezer.NOM.SG) 'fridge-freezer'

A search in the NKJP corpus shows that speakers prefer forms with a linking vowel (i.e., compounds proper). For instance, there is only one instance of the juxtaposition *pralka-suszarka* (43a), as opposed to 15 examples of *pralkosuszarka* (43b). There is no instance of *ampułka-strzykawka* (43g) in the NKJP, as opposed to 10 examples of *ampułkostrzykawka* (43h).

As a matter of fact, the orthographic form which appears even more often than (43a) and (43b) is *pralko-suszarka* (65 instances), which is not mentioned by SJP PWN as an acceptable variant. It is a compound noun but its spelling is a hybrid between the two recommended spelling variants. It contains both the linking vowel *-o-* and a hyphen. In the case of (43c) and (43d), there are no attestations of those forms in NKJP, while the (incorrect) hybrid spelling *drukarko-kopiarka* has five occurrences. The

NKJP corpus contains three examples of the juxtaposition *pralka-wirówka* (43e), two instances of *pralkowirówka* (43f), and two instances of the (incorrect) spelling *pralko-wirówka*. As for (43i) and (43j), apart from two instances of each variant in the NKJP corpus, namely, *chłodziarka-zamrażarka* and *chłodziarkozamrażarka*, there are a number of examples (76 hits) demonstrating the hybrid variant *chłodziarko-zamrażarka*.

When we inspect instances of multifunctional and additive compounds proper (especially the novel ones) which are found on various websites, blogs, and Internet fora, it can be observed that their spelling often violates prescriptive recommendations. Users of Polish tend to connect constituents of coordinate compounds proper with a hyphen, instead of writing them as a single orthographic word. This is shown in (44) for the multifunctional coordinate compound which is a novel formation, namely, *torba-worek* (bag.NOM.SG sack.NOM.SG) or *torboworek* (bag+LV+sack.NOM.SG) 'holdall bag.' The hybrid orthographic form *torbo-worek* (bag+LV+sack) can be regarded as an imitation of the spelling used for coordinate adjectives proper, for instance, *słodko-kwaśny* (sweet+LV+sour.NOM.SG) 'sweet and sour.'[19] Moreover, it is likely that speakers of Polish use the hyphen in order to set apart coordinate compound nouns (such as *torboworek* 'holdall bag' or *pralkosuszarka* 'washer dryer') from determinative compounds (such as *żywopłot* 'hedge' or *gwiazdozbiór* 'constellation').

(44) a. *Torbo-worek* *niebieski* *w* *kwiaty* –
bag+LV+sack.NOM.SG blue.NOM.SG in flower.ACC.PL
ceny, *dane* *techniczne*
price.NOM.PL data.NOM.PL technical.NOM.PL
'A flower-print blue holdall bag – prices, technical data'
(https://www.skapiec.pl › Moda › Galanteria i dodatki › Torebki damskie)

b. HIT!! TORBO - WOREK NA ZAKUPY
'Blockbuster! Holdall bag for shopping'
(kamilekssklep.pl › Torebki › Torebki sportowe)

Some coordinate formations which can be regarded as representing the additive type do not occur as juxtapositions. This is the case of *marszobieg* 'alternative marching and running' (676 instances in NKJP), which is occasionally written with a hyphen, that is, *marszo-bieg* (five instances in NKJP), but not as the juxtaposition **marsz-bieg*. A similar situation obtains in the case of *głuchoślepota* (deaf+LV+blind+SUFF) 'deafblindness,'

[19] The hyphenated spelling is also recommended by prescriptive linguists for coordinate compounds proper whose second constituent is a proper name, for instance, *Austro-Węgry* 'Austria-Hungary' and *Polako-Niemiec* 'half Polish and half German.'

which is also attested as *głucho-ślepota*, but not as the juxtaposition *głuchota-ślepota* (deafness blindness).

We can add that coordinate compounds show recursivity, as in (45).

(45) *atrakcyjne nagrody rzeczowe (m.in. drukarkokopiarkoskaner, telefon, odtwarzacz mp3)*
'attractive material rewards (among others, printer-copier-scanner, phone, mp3 player)' (stawik.com/pyrrus/vi-szaradziarskie-mistrzostwa-głogowa)

Coordinate compounds of the hybrid type denote entities which can be regarded as intermediate between two types of entities, for instance, between two species. No examples of juxtapositions with the hybrid reading were attested in the corpus; hence, such forms as **łosoś-pstrąg* (salmon.NOM.SG trout.NOM.SG) or **las-step* (forest.NOM.SG steppe.NOM.SG) are preceded here by an asterisk.[20] The data from the NKJP corpus demonstrate also occasional instances of the incorrect (i.e., hyphenated) spelling of coordinate compound nouns, such as *gado-ptak* (reptile+LV+bird), *laso-step* (forest+LV+steppe), and *tajgo-tundra* (taiga+LV+tundra).

(46) a. *łososiopstrąg* (salmon+LV+trout) 'salmon trout'
b. *lasostep* (forest+LV+steppe) 'forest-steppe'
c. *gadoptak* (reptile+LV+bird) 'archaeopteryx'
d. *tajgotundra* (taiga+LV+tundra) 'tundra-taiga'
e. *tygrysolew* (tiger+LV+lion) (or: *lygrys*) 'liger'
f. *wilkopies* (wolf+LV+dog) (or: *wilczak*) 'wolfdog'
g. *malinojeżyna* (raspberry+LV+blackberry) 'tayberry'
h. *agrestoporzeczka* (gooseberry+LV+currant) 'jostaberry'
i. *porzeczkoagrest* (currant+LV+gooseberry) 'jostaberry' (= h)
j. *jabłkogruszka* (apple+(LV)+pear) 'apple pear'[21]
k. *małpolud* (monkey+LV+man) 'apeman, anthropoid'

One might wonder if the forms *gazobeton* (gas+LV+concrete) 'aerated concrete' and *asfaltobeton* (asphalt+LV+concrete) 'asphalt concrete' could be included in the group of hybrid coordinate compounds. Let us note, however, that they can be treated as attributive compounds, denoting various

[20] The Polish juxtaposition *cocker spaniel* (denoting a hybrid breed of dogs) looks like an exception to this constraint. Let us observe, though, that it is a borrowing from English.

[21] The vowel *-o-* in *jabłkogruszka* 'apple pear' can be regarded either as a case marker (NOM.SG) or a linking vowel. The shape of non-nominative case forms, such as *jabłkogruszką* (apple+LV+pear.INS.SG), shows that *-o-* functions as a linking vowel.

types of concrete. This is indicated by their alternative N+RA forms in Polish, namely, *beton komórkowy* (concrete.NOM.SG cell.RA) 'aerated concrete' and *beton asfaltowy* (concrete.NOM.SG asphalt.RA) 'asphalt concrete.'

The hybrid coordinate compounds in (46) can be juxtaposed with comparative (i.e., similative) phrasal nouns in (47), such as *człowiek tygrys* 'tigerman' and *kobieta kot* 'Catwoman.' *Człowiek tygrys* 'tigerman' was a man who looked like a tiger due to surgical body modifications. The Catwoman is a character from comic books, that is, a woman who wears a catsuit and has the senses of a cat. In contrast, the hypothetical compounds *człowiekotygrys* (man+LV+tiger) or *człowiekokot* (man+LV+cat) could be used to denote a (fictitious) hybrid of a tiger and a human being, or a hybrid of a man and a cat.

(47) a. *człowiek nietoperz* (man bat) 'Batman'
b. *kobieta kot* (woman cat) 'Catwoman'
c. *kobieta wąż* (woman snake) 'snake woman'
d. *człowiek tygrys* (man tiger) 'Tigerman'

Thus, it can be seen that Polish speakers use different morphosyntactic patterns (i.e., NN compounds proper vs. NN juxtapositions) to coin naming units representing distinct semantic classes.

There are some data available which indicate that coordinate NN juxtapositions of the multifunctional and additive type tend to evolve into compounds proper. For instance, the NN juxtaposition *narty-sanki* (ski.NOM.PL sledge.NOM.SG) 'ski sled' listed by Damborský (1966) or *spódnica-spodnie* (skirt.NOM.SG trouser.NOM.PL) 'skirt-trousers, cullotes' mentioned by Kallas (1980) are now used only as compounds proper: *spódnicospodnie* and *nartosanki*. As shown for *spódnicospodnie* 'skirt-trousers, cullotes' in (48), the incorrect hyphenated spelling of the compound proper (i.e., *spódnico-spodnie*) is actually more common than the spelling recommended by current prescriptive sources and reference books.

(47) a. *narty-sanki* (ski.NOM.PL sledge.NOM.PL) 'ski sled' – mentioned by Damborský (1966), not listed in SJP PWN, no attestation in NKJP, no hits in Google search
b. *nartosanki* (ski+LV+sledge.NOM.PL) 'ski sled' – listed in SJP, 7 occurrences in NKJP, 72,000 hits in Google search
c. *narto-sanki* (ski+LV+sledge.NOM.PL) 'ski sled' – 1 occurrence in NKJP

(48) a. *spódnica-spodnie* (skirt.NOM.SG trouser.NOM.PL) 'cullotes' – mentioned by Kallas (1980), not listed in SJP PWN, no attestation in NKJP, no Google hits

b. *spódnicospodnie* (skirt+LV+trouser.NOM.PL) 'cullotes' – listed in SJP PWN, 1 attestation in NKJP
c. *spódnico-spodnie* (skirt+LV+trouser.NOM.PL) 'cullotes' – 15 attestations in NKJP

The NN juxtapositions *chłop-robotnik* (peasant worker) and *klasa-pracownia* (class workshop) are attested less commonly than the corresponding morphological compounds.

(49) a. *chłop-robotnik* (peasant.NOM.SG worker.NOM.SG) 'peasant farmer who works in a factory' – listed in SJP PWN, 84 occurrences in NKJP
b. *chłoporobotnik* (peasant+LV+worker.NOM.SG) – listed in SJP PWN, 204 occurrences in NKJP
c. *chłopo-robotnik* (peasant+LV+worker.NOM.SG) – 50 occurrences in NKJP

(50) a. *klasa-pracownia* (class.NOM.SG workshop.NOM.SG) 'classroom' – has an entry in the SJP PWN dictionary, 2 instances in NKJP
b. *klasopracownia* (class+LV+workshop.NOM.SG) 'classroom'– listed in SJP PWN, 303 instances in NKJP
c. *klaso-pracownia* (class+LV+workshop.NOM.SG) 'classroom' – 38 instances in NKJP (in various case forms)

The three formations from (50) are illustrated by some sentences culled from NKJP.

(51) a. *Niektóre klasy-pracownie trudno było poznać* (…)
'Some classrooms were difficult to recognize.'
b. *Oddane do użytku klasopracownie proszą się też o nowoczesne pomoce naukowe.*
'The classrooms which were brought into use also require modern teaching aids.'
c. *Posiadał on 15 klaso-pracowni oraz trzy mieszkania dla nauczycieli.*
'It (i.e., the building) contained 15 classrooms and three flats for teachers.'

Let us consider one more example. The SJP PWN dictionary (online) mentions three variants of a naming unit employed to denote a type of coffee table which can be converted into a dining table. A speaker of Polish can use the juxtapositions *ława-stół* (bench.NOM.SG table.NOM.SG) and *stół-ława* (table.NOM.SG bench.NOM.SG), or the compound proper *ławostół* (bench+LV+table.NOM.SG). Data from the NKJP corpus indicate that the compound proper is the more common form. It has 14 attestations (including one hybrid spelling *ławo-stół*), compared to single occurrences of *ława-stół* and *stół-ława*.

The change from a coordinate juxtaposition to a coordinate compound proper is gradual; hence, for some composite units the juxtaposition will be the more common (or the only attested) form. The juxtaposition *zupa-krem* (soup.NOM.SG cream.NOM.SG) 'cream soup, creamy soup,' or its diminutive form *zupka-krem* (soup+DIM.NOM.SG cream.NOM.SG), is the only form attested in the NKJP corpus. It has 27 attestations, including one juxtaposition with the inverted constituent order, that is, *krem-zupa* (cream.NOM.SG soup.NOM.SG).

The change from a juxtaposition to a compound proper is accompanied by the fixedness of the word order. Google searches reveal the existence of the compound proper *zupokrem* (soup+LV+cream.NOM.SG), which has 121 occurrences, and *zupkokrem* (soup+DIM+LV+cream.NOM.SG) with five occurrences. There are only three occurrences (on the Web) of the compound proper *kremozupa* (cream+LV+soup.NOM.SG) with the opposite order of constituents.

The juxtaposition *krem-żel* (cream.NOM.SG gel.NOM.SG) occurs 12 times in the NKJP corpus, *żel-krem* (gel.NOM.SG cream.NOM.SG), five times, while the compound proper *kremożel* (cream+LV+gel.NOM.SG) has two attestations in the corpus. There are no examples of *żelokrem* (gel+LV+cream.NOM.SG), which indicates that although both word orders of coordinate compounds may be potentially acceptable, only one of them may eventually become lexicalised.

5.4 Summary

This chapter has investigated the coocurrence of Polish morphological compounds and phrasal nouns which are based on the same stems, and which can thus be regarded as competitors.

Synthetic compounds proper coexist with synonymous NN.GEN combinations, for instance, *licencjodawca* (licence+LV+giver) 'licensor' and *dawca licencji* (giver.NOM licence.GEN). More often, however, phrasal nouns fill the gap for non-occurring (or non-instutionalised and playful) synthetic compounds, as in *doręczyciel paczek* (deliverer.NOM.SG parcel.GEN.PL) vs. ?*paczkonosz* (parcel+LV+carry+ø) 'parcel carrier, parcel delivery person.' The construction schema for NN.GEN combinations shows high productivity, while formation of synthetic compounds is restricted. While selected types (e.g., compounds terminating in *dawca*, *biorca*, *-bójca*, and *-mierz*) provide a relatively productive pattern for coining new formations, novel synthetic compounds proper terminating in other head constituents (e.g., *-nosz*) are conscious coinages (typically perceived as jocular or analogical formations), and they can be regarded as examples of language creativity.

Some attributive A+N compounds proper coexist with synonymous NA or AN phrasal nouns, for instance, *parostatek* and *statek parowy* 'steam boat.' However, there is often a meaning difference between AN morphological compounds and NA or AN juxtapositions. While the latter call for endocentric interpretation and tend to be semantically transparent, as in *płat dolny* (wing low) 'low wing,' attributive AN morphological compounds may belong to exocentric formations, in which the semantic head is not overtly expressed, as in *dolnopłat* (low+LV+wing) 'low-wing plane.'

It was shown above that there is often variation between coordinate compounds and coordinate NN juxtapositions which belong to the multifunctional or additive type, for instance, *pralka-suszarka* (washer.NOM.SG dryer.NOM.SG), *pralkosuszarka* (washer+LV+dryer.NOM.SG), *barman-kelner* (bartender. NOM.SG waiter. NOM.SG), and *barmanokelner* (bartender+lv+waiter. NOM.SG). However, coordinate compounds of the hybrid type have no corresponding NN juxtapositions, as can be seen in *lasostep* (forest+LV+steppe) vs. **las-step* (forest. NOM.SG steppe.NOM.SG) 'forest-steppe.'

Certain semantic-structural patterns are reserved for phrasal nouns, such as comparative composite units, for instance, *praca marzenie* (job. NOM.SG dream.NOM.SG) 'dream job,' Sex+Profession combinations, for instance, *kobieta szef* (woman.NOM.SG boss.NOM.SG) 'female boss,' or expressive NN combinations, such as *kierowca cham* (driver.NOM.SG lout.NOM.SG) 'a lout of a driver.'

Construction schemas for compound nouns and phrasal nouns in English and Polish

In Chapter 6, I attempt to show how the theoretical machinery of Construction Morphology can be employed in accounting for phrasal nouns and morphological compound nouns in English and Polish. Section 6.1 presents general construction schemas for English endocentric compound nouns, coordinate compound nouns, and exocentric compound nouns. Then I proceed to the formulation of schemas for English genitive compounds and A+N phrasal nouns. In Section 6.2, I employ the notion of schema unification and offer a tentative formulation of construction schemas for Polish endocentric compound nouns proper belonging to the interfixal type, interfixal-suffixal type, and interfixal-paradigmatic type. Apart from general schemas, some lower-level schemas are formulated for morphological compounds. Then attention is focused on construction schemas which account for phrasal nouns in Polish, namely, combinations of nouns and adjectives (including RAs) in any order, as well as combinations of nouns which agree in case, or NN.GEN complexes. In Section 6.3, second order schemas are proposed to give a formal account of the phenomenon of morphological condensation in Polish.

6.1 Construction schemas for English compound nouns and phrasal nouns

In Chapter 1, I quoted the construction schema which was formulated by Booij (2010: 17) and by Arcodia (2012: 375) as a general (and fairly abstract) schema for endocentric right-headed (subordinate or attributive) compounds in Germanic languages. For convenience, the schema is repeated in (1). It consists of the left-hand part which represents the internal structure of compounds and the right-hand part which signals their (general) semantic interpretation.

(1) $[[a]_{Xk}\ [b]_{Yi}\ ]_{Yj} \quad \leftrightarrow \quad [SEM_i \text{ with relation R to } SEM_k]_j$

The construction schema in (1) can be used to analyse the structure of existing right-headed compounds and serve as a template for coining novel compounds in English. Since this monograph focuses on compound nouns, a more specific construction schema will be employed, as given in (2a).

The variable Y_j representing the category of the whole compound and the variable Y_i stating the category of the right-hand constituent are replaced here by N_j and N_i. In the case of NN compounds, the left-hand constituent will be specified further as $[a]_{Nk}$, while in the case of AN compounds, as $[a]_{Ak}$ (see 2b and 2c).

(2) a. $[[a]_{Xk}\ [b]_{Ni}\ ]_{Nj} \leftrightarrow$ $[SEM_i$ with relation R to $SEM_k]_j$
b. $[[a]_{Nk}\ [b]_{Ni}\ ]_{Nj} \leftrightarrow$ $[SEM_i$ with relation R to $SEM_k]_j$
c. $[[a]_{Ak}\ [b]_{Ni}\ ]_{Nj} \leftrightarrow$ $[SEM_i$ with relation R to $SEM_k]_j$

Coordinate compound nouns were analysed in Chapter 2 as having two semantic heads. This may be reflected in the right-hand part of the schema in (3), which specifies that the meaning of (multifunctional) coordinate compounds is based on the meaning of both heads (cf. Arcodia 2012: 385).

(3) $[[a]_{Nk}\ [b]_{Ni}\ ]_{Nj} \leftrightarrow$ [entity, quality or action which is both SEM_k and $SEM_i]_j$

In the case of exocentric attributive compounds, their right-hand constituent does not determine the type of the entity denoted by the whole compound. For instance, *redneck* does not denote a type of neck, but a poor white inhabitant living in the countryside in southern states of the United States. This compound can be regarded as an instance of possessive compounds as identified by Olsen (2004), that is, a compound denoting a person, animal, or object which possesses the characteristics described by the compound's consituents. Since the meaning of exocentric compounds is not fully predictable, it is possible to prune the schema in (2) of its right-hand part, that is, the part following the arrow, to show that the compound is not a hyponym of the right-hand constituent.

(4) $[[a]_{Xk}\ [b]_{Ni}\ ]_{Nj}$

However, the lack of lexical-semantic specification associated with construction schemas is characteristic of constructions which are fully compositional, namely, free syntactic combinations, such as AN phrases *short necks*, *tall trees*, and *new cars*. Thus, a better solution is to modify the right-hand part of the schema in (2) in order to signal that both constit-

uents of an exocentric compound function as a complex modifier of an unexpressed semantic head (i.e., of entity$_j$).[1]

(5) $[[a]_{Xk}\ [b]_{Ni}\ ]_{Nj} \leftrightarrow [\text{entity}_j \text{ with relation R to SEM}_k \text{ and SEM}_i]_j$

The schema underlying English genitive compounds, that is, phrasal nouns which consist of the noun in the genitive case followed by the head noun, such as *snail's pace* or *dog's body*, can be treated as a specific instantiation of a general syntactic template in (6), which accounts for noun phrases containing subject-determiner genitives, such as *my friend's car* or *those people's house*.

(6) $[\text{NP.GEN N}]_{NP}$

I use the NP label in (6). Following Abney (1987), it is possible to reanalyse English noun phrases as Determiner Phrases. The genitive attribute in (6) can then be renamed as DP.GEN, since it is headed by determiners (such as the demonstrative *those* or the possessive *my*).

(7) $[\text{DP.GEN N}]_{DP}$

In the case of English genitive compounds, such as *snail's pace* or *men's clothes*, the left-hand constituent is not a determiner phrase (and not a noun phrase), since it does not take individual modifiers. As shown in Chapter 2, adjectives which precede the genitive in such strings as *a glorious summer's* day, *expensive women's clothes*, or *a metal baby's high-chair* do not modify the noun in the genitive case but they modify the compound. Consequently, the genitive attribute will be treated as a bare (i.e., non-projecting) noun, namely, N^0.GEN. The head N is also syntactically minimal, that is, it is a non-projecting N^0, as it cannot take an individual modifier. This is shown by the unacceptability of the strings **a summer's glorious day*, **women's expensive clothes*, and **a baby's metal high-chair* (when *women's* or *baby's* is a descriptive, not a determiner, genitive).

The instantiation of the general template in (6) which accounts for genitive compounds can be formulated as in (8).

(8) $[N^0_i\text{.GEN } N^0_j]_{N^0k} \leftrightarrow [\text{NAME for SEM}_j \text{ with some relation R to SEM}_i]_k$

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[1] In the model of Parallel Architecture, the head of *redneck* would have to be lexically stipulated as PERSON (see Jackendoff's 2010 analysis of *birdbrain*). In the cognitive-linguistic approach taken by Benczes (2006) or Kuczok (2016), the meaning of *redneck* would be based on two conceptual metonymies: PART (neck) FOR WHOLE (person) and RESULT (red neck) FOR ACTION (working outdoors).

The schema in (8) specifies the semantic interpretation of endocentric genitive compounds, which are names for concepts and which are hyponyms of their heads, for instance, *men's clothes*, *summer's day*. There exist exocentric genitive compounds, such as *duck's foot*, denoting a type of 19th century volley gun with multiple barrels arranged in a splayed pattern (similar to that of the webbed foot of a duck), or denoting a plant whose leaves resemble a duck's foot in shape. The schema for exocentric N.GEN+N combinations can either be devoid of its semantic correlate (as in 4), or it can be given a similative interpretation, as in (9).[2]

(9) $[N^0_i.\text{GEN}\ N^0_j]_{N^0_k} \leftrightarrow$ [NAME for an entity$_k$ which shows some similarity to SEM$_j$]$_k$

The syntactic category of the genitive compound is specified in (9) as N^0. This is in agreement with the analysis of phrasal lexemes, such as Dutch and Greek A+N combinations, by Booij (2010, 2019), or the treatment of Italian multi-word units by Masini (2009).

In the framework of X-bar theory (cf. Selkirk 1982; Haegeman 1994: 104; Ruszkiewicz 1997: 223–224), X^0 stands for the head of a zero-level projection, and it is also the head of the whole syntactic phrase. In syntactic representations, X^0 projections are dominated by X' projections, which consist of a complement combined with the head, or of an adjunct combining with another X' projection. The maximal (i.e., the highest) projection is that of XP (e.g., VP, AP), which results from X' projection combining with a specifier. The head (i.e., X^0) is a terminal node and dominates a word.

In spite of showing internal syntactic structure, English genitive compounds are treated as instances of a non-projecting category, that is, N^0 . They show a word-like behaviour, as demonstrated in Chapter 2. Moreover, they can occasionally occur as a complex modifier within a compound noun, as in [[*girls' schools*] *association*] and [[*men's fashion*] *depot*].[3]

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[2] An alternative specification of the meaning correlate of the construction in (9) could be "NAME for an entity$_k$ which has the property of SEM$_j$." In the framework of Conceptual Semantics and Parallel Architecture (Jackendoff 2010, 2016), we could invoke here the metaphor coercion schema, which is mentioned in Section 2.2 (example 24). However, the metaphor coercion schema will not suffice to explicate the meaning of compounds whose interpretation involves metaphtonymy, for instance, *hammerhead* 'a person regarded as silly' (see Benczes 2006 and Kuczok 2016 for more examples of such compounds).

[3] Constituents of compound nouns are lexemes, that is, A and N, or N^0 and A^0 (see the next pages for discussion). I assume that the whole compound noun in English is of category N^0, in which I agree with Liberman and Sproat (1992), who take a similar stand with respect to English compound nouns, such as *chess board* and *book bags*.

The structure of English A+N phrasal nouns can be represented by the schema in (10a) or (10b).[4]

(10) a. $[A^0_i\ N^0_j]_{N^0k} \leftrightarrow$ [NAME for SEM_j with property $SEM_i]_{SEMk}$
b. $[A^0_i\ N^0_j]_{N^0k} \leftrightarrow$ [NAME for SEM_j with some relation R to $SEM_i]_{SEMk}$

To be more exact, the schema used for phrasal nouns consisting of denominal (relational) adjectives and nouns can have a slightly different wording of its right-hand part, as shown in (11). The paraphrase of the meaning of the RA+N phrasal noun will make reference to entity E denoted by the base of the relational adjective in question, that is, *academia* in *academic teaching*, or *philharmonia* in *philharmonic orchestra*. In the case of RA+N phrasal nouns containing collateral adjectives, such as *solar, dental*, and *mental,* the entity E will be denoted by a noun which shows semantic, though not formal, relatedness to the adjective. For instance, the Germanic noun *sun* is related semantically to the Latinate adjective *solar*, the noun *tooth*, to the adjective *dental*, and *mind*, to *mental*.

(11) $[A^0_i\ N^0_j]_{N^0k} \leftrightarrow$ [NAME for SEM_j with some relation R to entity E of $SEM_i]_{SEMk}$

The schema in (10) will then be reserved for analysing the structure of phrasal nouns whose first constituent is a non-derived adjective (or a derived but not denominal one), for instance, *common thrush*, *hard soda*, *hard dish*, *red oak*, and *old maid.*

A potential problem for formulating schemas for English A+N phrasal nouns is posed by doubts concerning their phrase-like or word-like status. Such doubts were illustrated in Chapter 2. The border between syntactic phrases, phrasal nouns, and compound nouns is difficult to draw in the case of AN combinations in various languages. As mentioned in Chapter 1, Booij (2009) proposed the following syntactic representations for Greek morphological compounds, syntactic compounds (i.e., phrasal lexemes), and constructs (12).

(12) a. morphological compounds: $[N\ N]_{N^0}$. Example: $[[nixt]_{N^0}\ [puli]_N]_N$ 'night-bird'
b. syntactic compounds: $[A^0\ N^0]_{N^0}$. Example: $[[psixros]_{A^0}\ [polemos]_{N^0}]_{N^0}$ 'cold war'
c. constructs: $[A^0\ N^0]_{N'}$. Example: $[[atomiki]_{A^0}\ [vomva]_{N^0}]_{N'}$ 'atomic bomb'

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[4] The version in (10a) is the one suggested for Dutch and Greek A+N syntactic compounds by Booij (2009, 2010).

Liberman and Sproat (1992) regard A+N complexes that show left-dominant stress pattern (i.e., forestress) as N^0 combinations (which they treat as compounds), for instance, *solar heat*, *medical building*, and *tonic water*. AN or NN combinations with right-dominant stress pattern, such as *solar battery*, *brown sugar*, *old maid*, or *red herring*, are regarded by them as phrasal expressions of the category N1 (i.e., N'), involving adjunction to N1 head constituents. The fact that some of those putative phrasal N' combinations are semantically opaque (e.g., *red herring* and *old maid*) is of no importance to Liberman and Sproat (1992).

Sadler and Arnold (1994) point out that Liberman and Sproat's "lexical A-N constructions" (i.e., N^0 combinations), such as *solar heat*, *lunar eclipse*, and *nuclear physicist*, exhibit a number of word-like properties, including the impossibility of coordination, impossibility of using *one* to replace the head, and the lack of individual modifiers (of the non-head constituent).

It might perhaps be argued that the schemas in (10) and (11) should be reserved for Liberman and Sproat's lexical AN constructions (e.g., *solar heat*), while AN combinations, such as *solar battery*, *red herring*, or *brown sugar* (with right-dominant stress), should be analysed by the schema in (13), in which the resulting combination is a construct and has a phrasal status, namely, N'.

(13) $[A^0_i\ N^0_j]_{N'k} \leftrightarrow [\text{NAME for } SEM_j \text{ with property } SEM_i]_{SEMk}$

However, there are several (at least three) reasons why I will not posit the schema in (13) for English AN phrasal nouns with right-dominant stress. Firstly, the position of stress placement in AN and NN combinations may vary between speakers (as shown by Bauer 1998), and this would necessitate positing two distinct schemas for one particular AN complex nominal exhibiting two pronunciations. Secondly, the structure in (13) is postulated by Booij (2010: 181) for Greek A-N constructs, whose constituents show greater mobility and which allow certain syntactic operations, for instance, article doubling. English AN complexes with right-dominant stress do not allow word order variation (cf. **battery solar*, **herring red*) or article doubling (**the battery the solar*, **the red the herring*). Consequently, English AN combinations are less phrasal than Greek constructs.

Thirdly, as observed by Bauer (1998), Giegerich (2005, 2009), and Bell (2012), AN complex nominals in English may show unexpected combinations of phrase-like and word-like properties. For instance, the expression *medical appointment* and *general hospital* require left-dominant stress (like compounds), yet they allow *one*-replacement (like phrases). On the other hand, there occur AN combinations which have right-domi-

nant (i.e., phrasal) stress but disallow *one*-replacement and show semantic opacity, for example, *natural gas* and *criminal lawyer*. It would be very difficult (or even hardly possible) to express those different degrees of "wordhood" and "phrasehood" by appealing only to the distinction between N' and N^0 as categories of English AN combinations.

Therefore, I will treat AN complex nominals in English as being of category N^0. Consequently, I will also assume that the schemas in (10) and (11) can be employed for analysing AN phrasal lexemes in English. One more advantage of such a position is that it predicts the possibility of coordinating AN phrasal nouns and NN compounds, which are both of category N^0. Examples of this type of coordination were provided in Chapter 2, such as *Cognitive and Information Studies* or *Cultural and Heritage Tourism*.

It needs to be kept in mind, though, that there is another controversy concerning the phrase-like or word-like status of English NN compounds. If I were to take the position advocated by Payne and Huddleston (2002), I would have to restrict the compound schema in (2) to a handful of NN combinations which do not allow coordination or recursion, and which are preferably written as one orthographic word, for instance, *icecream*, *sunset*, and *sunrise*. I would have to treat as phrasal (i.e., as N' syntactic objects) the majority of NN combinations in English, even those which are commonly regarded as compound nouns in widely used morphology textbooks (including Bauer 1983; Plag 2003; Szymanek 1989), such as NN formations *blackcurrant sorbet*, *washing machine*, and *apple pie*.

Furthermore, some scholars, for instance, Spencer (2003) or Bağriaçik and Ralli (2015), consider the possibility of regarding all (or nearly all) endocentric NN combinations in English as phrasal. Spencer (2003) suggests that we can talk about true compounds in English only when they exhibit some special allomorphy or when the syntax (e.g., word order) of their constituents differs from that of canonical phrases. Bağriaçik and Ralli (2015) point out that Turkish compounds (which are syntactic, i.e., phrase-level, combinations) can take syntactic phrases as their constituents. The usage of phrasal (or even sentential) modifiers is also attested in English compounds (as discussed by Lieber 2009b and Trips 2016), such as *God-is-dead theology, a "chicken and egg" situation*, or *this "Steffi is great" attitude*. However, the matter seems to be more complicated, since phrases can also become input to affixal operations, and they become a part of a morphological object which is N^0, as in *the-know-it-all-ism* quoted after Booij and Audring (2015). Thus, the occurrence of phrasal modifiers in English compounds is not a convincing argument for the phrasal (i.e., syntactic) status of such combinations as *washing machine*, *solar battery*, or *apple pie*.

6.2 Construction schemas for Polish compounds and phrasal nouns

The construction schema for endocentric Germanic compounds, given above in (1), needs to be modified to be appropriate for Polish compounds. The overwhelming majority of compounds proper in Polish contain two stems connected by a linking vowel (LV), which should therefore be included in the schema,[5] as rougly formulated for endocentric compound nouns in (14). Strictly speaking, the right-hand constituent can either be analysed as a stem (as stated in 14a), or as a fully inflected word (in 14b), if the inflectional paradigm of the right-hand (head) constituent is the same as the inflectional paradigm of the whole compounds, as in *płot* 'fence' and *żywopłot* 'hedge'.[6]

(14) a. $[[a]_{XkStem} + LV + [b]_{NiStem}]_{Nj} \leftrightarrow [SEM_i \text{ with relation R to } SEM_k]_j$
b. $[[a]_{XkStem} + LV + [b]_{Ni}]_{Nj} \leftrightarrow [SEM_i \text{ with relation R to } SEM_k]_j$

The abstract construction schema for interfixal-suffixal compound nouns, such as *pracodawca* 'employer' or *cudzoziemiec* 'foreigner,' should include the SUFF element as the final constituent. Moreover, the category of the right-hand stem need not be that of N. It could be a verb stem, which is then nominalised by the suffix added, for instance, the verb stem *daw-* 'give,' nominalised by the suffix *-ca* in *pracodawca* 'employer,' or the nominal stem, such as *ziem-* 'earth' in *cudzoziemiec* 'foreigner.' This is why the right-hand stem will be represented as $[b]_{Xi}$. The presence of SUFF element necessitates some modification in the semantic part of the schema. The whole compound is not a hyponym of its right-hand stem (i.e., *pracodawca* 'employer' is not the hyponym of the verb stem *daw-* 'give').

(15) $[[a]_{XkStem} + LV + [b]_{XiStem} + SUFF_j]_{Nm} \leftrightarrow [\text{entity}_j \text{ with relation R to } SEM_k \text{ and } SEM_i]_m$

The compound *pracodawca* (lit. work-giver) 'employer' can be regarded as a hyponym of the suffixal element (as is assumed in the schema in 15 above), or a hyponym of the stem+SUFF combination (no matter whether it occurs as an independent word or not). If the latter position is taken, the schema in (15) can be rewritten as (16), where the right-hand stem and the suffix form a constituent (whose hyponym is the whole compound).

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[5] Here I differ from Booij (2009), who postulates no linking element in the syntactic representations of Greek morphological compounds.

[6] Alternatively, I could have used the labels N, V and A to represent bound stems, as well as free forms which occur as constituents of morphological compounds.

(16) $[[a]_{XkStem}$ + LV+ [$[b]_{XiStem}$ + SUFF $]_{Nm}]_{Nn} \leftrightarrow [entity_m$ with relation R to $SEM_k]_n$

The recognition of [Stem1+LV+ [Stem2+SUFF]] as the internal structure of Polish interfixal-suffixal formations follows the analyses of constituent structure of English synthetic compounds (such as *pasta eater*, *bread baker*, *truck driving*, and *bone setting*) proposed by the majority of researchers, including Selkirk (1982), Di Sciullo and Williams (1987), Booij (1988), and Lieber (1992, 2004, 2005). They advocate the right-branching structure [A [B C]] for English synthetic compounds, for instance, [*bread* [*bake -er*]].[7] They argue that the adoption of the left-branching structure [[A B] C] for such compounds, that is, [[*bread bake*] *-er*], would involve the recognition of compound constituents which are not attested as lexemes. The putative verbs ??*breadbake* or ??*truckdrive* are not attested in English, and the majority of NV compound verbs can be treated as back-formations from NN compound nouns (as was mentioned in Chapter 2), for instance, *babysit* and *windowshop*, derived from *babysitting* and *windowshopping*.

The opposite view concerning the formation of English synthetic compounds, namely, the recognition of [[A B] C] as the constituent structure, is defended by Lieber (1983), Harley (2009), and Kolbusz-Buda (2014). Lieber (1983) and Kolbusz-Buda (2014) argue that the left-branching structure for deverbal compounds such as *bone setting* or *truck driver*, that is, [[*bone set*] *-ing*] and [[*truck drive*] *-er*], is preferable to the right-branching structure, that is, [*bone* [*set -ing*] and [*truck* [*drive -ing*]], because it reflects the close relationship between the verb stem (B) and the left-most stem (A) which typically expresses the verb's internal argument.[8] Harley (2009) proposes, within the framework of Distributed Morphology, that during the derivation of the compound *truck driver*, the root √TRUCK merges with the root √DRIVE as its argument and incorporates into it. Only then does the complex head merge with the agent-flavoured n^0 (which is realised overtly as the suffix *-er*).

Kolbusz-Buda (2014: 93) provides an additional argument in favour of the left-branching structure for synthetic and parasynthetic compounds (cross-linguistically). She points out that in some languages, neither [A B] nor [B C] constituents of [A B C] compounds occur as free

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[7] This is why no separate schema for English synthetic compounds was given in Section 6.1.

[8] Nagórko (2010: 201) proposes that left-branching structures, e.g. [[*cud(o-)twór*] *-ca*] and [[*płask(o-)stop'*]- *e*], are appropriate representatons of the internal structure of synthetic and parasynthetic compounds in Polish, e.g. *cudotwórca* (miracle+LV+create+NMZL) 'magician, lit. miracle-creator' and *płaskostopie* (flat+LV+foot+ø) 'flat feet, platypodia'. She assumes that such compounds are derived from syntactic phrases (i.e. verb phrases or noun phrases).

standing forms. This can be exemplified by the Polish compounds *ojcobójca* (father+LV+kill+NMLZ) 'patricide, killer of one's father' and *wodolejstwo* (water+LV+pour+NMLZ) 'waffle,' for which neither the potential compound verbs **ojcobić* 'to kill one's father' and **wodolać* 'to pour water' nor the putative verb+SUFF constituents, that is, **bójca* 'killer' and **lejstwo* 'pouring,' are attested as independently occurring lexemes. Thus, the assumption of the right-branching structure does not necessarily avoid postulating non-existing forms as compound constituents.

However, I think that there is an advantage in postulating the internal structure as in (16) for *ojcobójca* 'killer of one's father' or *pracodawca* (work+LV+give+NMLZ) 'employer.' The abstract pattern in (16) will be instantiated by more specific schemas in which the nominalising suffix will be provided with its morpological shape, for instance, *-ca*, *-arz*, and *-ec*. This is shown in (17) for synthetic compounds which terminate in the agentive suffix *-ca* added to a verb stem, and whose left-hand constituent is a nominal stem. The meaning of the resulting compounds will be more specific than in (16).

(17) $[[a]_{NkStem}$ + LV+ [$[b]_{ViStem}$ + -ca$]_{Nm}]_{Nn} \leftrightarrow [\text{entity}_m$ with relation R to SEM_k and $\text{SEM}_i]_n$

Moreover, there is a way of combining the left-branching structures proposed by Kolbusz-Buda (2014) for Polish and by Lieber (1983) for English with the right-branching structure presented in (16) and (17).[9] Following Booij (2007, 2015), we can postulate a unification of a compounding schema with the schema for suffixal deverbal derivatives in *-ca*. The agentive suffix *-ca* can be treated as having a semantic scope over the [Stem1 + LV+ Stem 2] combination, although the latter combination, such as **pracodawać* (work+LV+give) 'to give employment,' does not occur as an independent lexeme.

(18) $<[[a]_{NkStem}$ + LV+ [$[b]_{ViStem}$ + *-ca*$]_{Nm}]_{Nn} \leftrightarrow [\text{Agent of SEM}_p]_n>$
where $[[a]_{NkStem}$ + LV+ $[b]_{ViStem}] \leftrightarrow [\text{MOD}_k\ \text{SEM}_i]_p$

For the time being, let us return to the simpler schema in (17) and illustrate the mechanism of lexical specification. The schema in (17) will be instantiated by lower-level schemas, in which the position of the verbal stem is filled by a selected verb, for instance, *daw-* 'give,' *bior-* 'take, receive,' and *znaw-* 'know.'

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[9] See also Alexiadou (2017) and Bloch-Trojnar and Malicka-Kleparska (2017) for discussion of synthetic compounds in a cross-linguistic perspective.

(19) a. $[[a]_{NkStem}$ + LV+ $[[daw]_{ViStem} + -ca]_{Nm}]_{Nn} \leftrightarrow$ [Agent of $[dawać\ SEM_k]]_n$
b. $[[a]_{NkStem}$ + LV+ $[[bior]_{ViStem} + -ca]_{Nm}]_{Nn} \leftrightarrow$ [Agent of $[brać\ SEM_k]]_n$
c. $[[a]_{NkStem}$ + LV+ $[[znaw]_{ViStem} + -ca]_{Nm}]_{Nn} \leftrightarrow$ [Agent of $[znać\ SEM_k]]_n$

It can be assumed that the low-level schemas in (19) function as patterns for novel formations. Novel morphological compounds proper in Polish seem to be coined by analogy to selected productive patterns. As was observed by Jadacka (2001: 96), compounds terminating in *dawca* 'giver,' *biorca* 'taker, recipient,' and *znawca* 'expert, connoisseur' are particularly frequent among neologisms which were coined in the second half of the 20th century.

(20) *-dawca* (cf. *dać* /*dawać* 'to give')
a. *łapówkodawca* (bribe+LV+giver) 'bribe-giver'
b. *nasieniodawca* (sperm+LV+giver) 'sperm donor'
c. *koncepcjodawca* (idea+LV+giver) 'author of the idea'

(21) *-biorca* (cf. *brać* 'to take')
a. *łapówkobiorca* (bribe+LV+taker) 'person who receives a bribe'
b. *organobiorca* (organ+LV+taker) 'organ transplant recipient'
c. *zasiłkobiorca* (benefit+LV+taker) 'recipient of a benefit'

(22) *-znawca* (cf. *znać* 'to know')
a. *przekładoznawca* (translation+LV+expert) 'specialist in translation studies'
b. *zabytkoznawca* (historical_monument+LV+expert) 'specialist in historical buildings; specialist in cultural heritage'
c. *mitoznawca* (myth+LV+expert) 'specialist in myth studies'

Among interfixal-paradigmatic formations,[10] Jadacka (2001: 58–59) mentions compound nouns denoting instruments and terminating in selected nominalised verb stems, such as *-mierz*, *-chron*, or *-ciąg*, as represented in (23–25).

(23) *-mierz* (cf. *mierzyć* 'to measure')
a. *ciśnieniomierz* (pressure+LV+measure+ø) 'pressure gauge'
b. *głębokościomierz (*depth+LV+measure+ø) 'depth gauge'
c. *dalekościomierz* (distance+LV+measure+ø) 'range finder'

[10] Jadacka (2001: 98) notes that few novel formations terminating in such verb stems were coined after 1989, which she regards as an indication of decreasing productivity of interfixal-paradigmatic formations.

(24) *-chron* (cf. *chronić* 'protect')
  a. *światłochron* (light+LV+protect+ø) 'lightwell'
  b. *wiatrochron* (wind+LV+protect+ø) 'windbreak'

(25) *-ciąg* (cf. *ciągnąć* 'pull')
  a. *linociąg* (cable+LV+pull+ø) 'hoist'
  b. *taśmociąg* (belt+LV+pull+ø) 'conveyor belt'

The general schema for interfixal-paradigmatic formations (whose left-hand constituent is a noun and the right-hand constituent is a nominalised stem) is given an approximate formulation in (26) and (26′). The schema in (26′) involves the unification of a compounding schema with the schema for affixless deverbal derivatives denoting instruments.

(26) $[[a]_{NkStem}$ + LV+ [$[b]_{ViStem}$ + ø$]_{Nm}]_{Nn}$ ↔
[entity$_m$ with relation R to SEM$_k$ and SEM$_i]_n$

(26′) <$[[a]_{NkStem}$ + LV+ [$[b]_{ViStem}$ + ø]$_{Nm}]_{Nn}$ ↔ [Instrument of SEM$_p]_n$>
where $[[a]_{NkStem}$ + LV+ $[b]_{ViStem}]$ ↔ [MOD$_k$ SEM$_i]_p$

As in the case of interfixal-suffixal formations, I assume in (26′) that the zero affix with the instrumental function has a semantic scope over the [Stem1 + LV+ Stem2] combination, although the latter combination, for instance, **taśmociągnąć* (belt+LV+pull) 'to pull the belt,' does not occur as an independent lexeme.

When the position of the right-hand stem is filled by the verb stem *mierz-* 'to measure,' the semantic interpretation of the lower-level schema in (26) gets more specialised, as indicated in (27).

(27) $[[a]_{NkStem}$ + LV+ [$[mierz]_{ViStem}$ + ø$]_{Nm}]_{Nn}$ ↔ [Instrument of [*mierzyć* SEM$_k$]]$_n$

Similar low-level schemas can be provided for instrument compound nouns illustrated in (23–25). The schema in (28) can be proposed for Polish coordinate compound nouns, such as *spódnicospodnie* (skirt+LV+trousers) 'skirt-trousers, cullotes,' *marszobieg* (march+lv+run) 'run/walk; endurance march,' or *półkotapczan* (shelf+LV+couch) 'wall bed.'

(28) $[[a]_{Xk}$ +LV+ $[b]_{Ni}$ $]_{Nj}$ ↔[entity, quality or action which is both SEM$_k$ and SEM$_i]_j$

Let us now look at schemas for phrasal nouns in Polish. The schema for endocentric NN.GEN juxtapositions is given in (29).

(29) $[N^0_i\ N^0_j.\text{GEN}\ ]_k \leftrightarrow$ [NAME for SEM_i with some relation R to $SEM_j]_k$

It differs from the schema formulated in (8) above for English genitive compounds in the position of the head, which is on the left in Polish NN.GEN juxtapositions and on the right in English genitive compounds (i.e., in *X's Y* construction with English descriptive genitives, such as *a summer's day*).

In free syntactic strings in Polish which contain referential genitive phrases, the head is also on the left, as in *samochód mojego brata* (car.NOM my.GEN brother.GEN) 'my brother's car.' Consequently, it can be argued that the schema in (29), which underlies NN.GEN phrasal nouns in Polish, is an instantiation of the more general syntactic template in (30), which can be employed to analyse canonical noun phrases in Polish. For simplicity, I use the abbreviation NP (noun phrase) in (30), although some scholars interpret Polish noun phrases as DPs (Determiner Phrases).[11]

(30) $[N^0\ \text{NP.GEN}\ ]_{NP}$

Coordinate (multifunctional) NN juxtapositions, whose constituents agree in case, can be analysed by (and coined according to the pattern provided by) the schema in (31). It is basically the same as the schema for coordinate morphological compounds in English. To make it more similar to schemas for other phrasal nouns, I will restate it as (32), to show that an NN coordinate juxtaposition has some internal syntactic structure and that its constituents are non-projecting categories.

(31) $[[a]_{Nk}\ [b]_{Ni}\ ]_{Nj} \leftrightarrow$ [entity, quality or action which is both SEM_k and $SEM_i]_j$

(32) $[N^0_i\ N^0_j\ ]_{N^0k} \leftrightarrow$ [entity, quality or action which is both SEM_k and $SEM_i]_j$

Attributive N+A tight units, such as *panda wielka* (panda great) 'giant panda' or *tłuszcz utwardzony* (fat hydrogenated) 'hydrogenated oil,' call for the schema in (33).

(33) $[N^0_i\ A^0_j\ ]_k \leftrightarrow$ [NAME for SEM_i with property $SEM_j]_k$

Since a number of tight units consist of a head noun followed by a relational (denominal) adjective, such as *szkoła muzyczna* (school musical)

[11] The occurrence of the DP level in article-less languages, such as Polish, is a controversial issue in formal approaches to syntax. While Rutkowski and Progovac (2005), Rutkowski (2009), Migdalski (2003), Cetnarowska (2005) and Cegłowski (2017), among others, assume the existence of the DP layer in Polish, Willim (2000b) argues that the DP hypothesis is not applicable to Polish.

'music school' and *poczta dyplomatyczna* (mail diplomatic) 'diplomatic mail,' their internal structure and semantic interpretation can be stated by means of the schema in (34), which makes reference to entity E denoted by the base of the relational adjective in question, for instance, to the noun *muzyka* 'music,' which is the base of the relational adjective *muzyczny* 'musical' in the NA combination *szkoła muzyczna* 'music school.'

(34) $[N^0_i\ A^0_j\ ]_k \leftrightarrow$ [NAME for SEM_i with some relation R to entity E of $SEM_j]_k$

Apart from analysing NA tight units, which exhibit a fixed head-modifier order, the schema in (34) can also represent the internal structure of complex nominals with migrating relational adjectives taking the post-head position, as in *buty zimowe* (shoes winter.RA) 'winter shoes,' *odzież sportowa* (clothing sport.RA) 'sportswear,' and *dyżur nocny* (duty night.RA) 'night duty.' Let us recall that migrating adjectives can either follow or precede their heads. The schema in (35) is needed to account for combinations in which migrating relational adjectives occur in the pre-head position, as in *zimowe buty* (winter.RA shoes), *sportowa odzież* (clothing sport.RA), and *nocny dyżur* (night.RA duty) 'night duty.'

(35) $[A^0_i\ N^0_j\ ]_k \leftrightarrow$ [NAME for SEM_j with some relation R to entity E of $SEM_i]_k$

The schema in (36) accounts for the internal structure and semantic interpretation of combinations with pre-head migrating adjectives which are deverbal or non-derived (i.e., which are not relational), for instance, *odżywczy krem* (nourishing cream) 'nourishing cream' and *chude mleko* (lean milk) 'skimmed milk.'

(36) $[A^0_i\ N^0_j\ ]_k \leftrightarrow$ [NAME for SEM_j with property $SEM_i]_k$

The schemas in (35) and (36) are not appropriate for such AN combinations as *boża krówka* (god.RA cow.DIM) 'ladybird' and *biały kruk* (white raven) 'unique rarity,' which are recognised in Chapter 4 as lexical idioms. They are exocentric; hence, *biały kruk* 'unique rarity' does not denote a raven with the property of being white (as would be implied by the semantic part of the schema in 36).

Following the insight from English (or Polish) exocentric compounds, one could propose that the semantic section of the schema for AN lexical idioms is stated as in (37). This sounds plausible for *biały kruk* 'unique rarity,' since entities denoted by this expression (e.g., unique editions of books) share the property of being rare with white ravens. In the case of *boża krówka* 'ladybird,' the relation of similarity is hard to discern, though.

(37) $[A^0_i\ N^0_j\ ]_k \leftrightarrow$ [NAME for an entity$_k$ which shows some similarity to SEM$_j$]$_k$

The schemas in (35–37) can be treated as instantiations of a general [AN] template which can be employed to produce regular syntactic phrases. The pre-head position is the expected position of attributive adjectives, as shown in (38).

(38) a. *nowe samochody* (new.NOM.PL car.NOM.PL) 'new cars'
b. *kolejne spotkanie* (next.NOM.SG meeting.NOM.SG) 'next meeting'

At first glance, it is not obvious that the schemas for NA (and RA+N) combinations in (33–34) can be regarded as instantiations of general schemas for syntactic combinations, given that the canonical position of adjectives in Polish is the pre-head one. This is an important issue. If the order of constituents in a multi-word expression cannot be produced by syntactic rules, then such a combination could be regarded as a compound (and not a phrasal lexeme or a free syntactic combination), as suggested for French by Fradin (2009). However, examples can be provided of Polish syntactic phrases in which the adjective (or an adjectival participle) follows the head noun. They instantiate the syntactic template in (39) (see Topolińska 1984; Gębka-Wolak 2000, Nagórko 2010).

(39) $[N\ AP]_{NP}$

Such a non-canonical word order occurs in sentences containing reduced relative clauses, as in (40).

(40) a. *decyzja* *niezwykle* *trudna*
decision.NOM.SG extremely difficult.NOM.SG
'a decision which is/was extremely difficult'
b. *dom* *należący* *do* *mojego* *dziadka*
house.NOM.SG belonging.NOM.SG to my.GEN.SG grandfather.GEN.SG
'a house which belongs/belonged to my grandfather'

Furthermore, the non-canonical NA word order can be used to signal elevated style (41a), or it can be encountered in emotionally laden expressions, such as curses (in 41b).

(41) a. *matka moja* (mother.NOM.SG my.NOM.SG) 'my mother'
b. *Lizus cholerny*! (toady.NOM.SG damned.NOM.SG) 'a damned toady!'

Another problematic issue concerning construction schemas for Polish NA and AN combinations is whether the category of resulting phrasal nouns is N^0, as was assumed in (33–37), or N'.[12] Willim (2001) regards NA complexes in Polish as phrasal combinations, following Ralli and Stavrou's (1998) analysis of Greek A+N constructs, such as *atomiki vomva* 'atomic bomb.' Constituents of Polish adjective+noun combinations (with migrating adjectives) can move, as can elements of Greek constructs. This is treated by Willim (2001) as evidence that the internal structure of AN/NA complexes is visible (i.e., accessible) to rules of syntax. Moreover, Willim (2001: 84) provides the example quoted here as (42) to show that parenthetical expressions can occasionally split constituents of AN or NA combinations.

(42) *To* *jest* *dzielnica*, *jak* *każdy* *widzi*,
this be.PRS.3SG district.NOM.SG as everyone.NOM see.PRS.3SG
handlowa.
shopping.RA.NOM.SG
'This is, as everyone can see, a shopping district.'

Willim (2001) argues that example (42) testifies to the syntactic (and not lexical) status of the NA complex *dzielnica handlowa* (district shopping.RA) 'shopping area.' She also regards coordination of heads or non-heads as signalling that NA combinations in (43) are regular syntactic phrases (Willim 2001: 84).

(43) a. *powieści* *i* *filmy* *historyczne*
novel.NOM.PL and film.NOM.PL historical.NOM.PL
'historical films and novels'

b. *krytyk* *filmowy* *i* *teatralny*
critic.NOM.SG film.RA.NOM.SG and theatrical.NOM.SG
'a film and theatre critic'

Cetnarowska (2015a: 153, 159) shows that parenthetical expressions can occasionally separate constituents of Polish morphological compounds which contain numerals, for instance, *ćwierć-* 'quarter, one fourth' or *drug(o)-* 'second', as in (44–45).

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[12] Węgrzynek (1995: 23) assumes that both AN idiomatic combinations, such as *biały kruk* (white raven) 'rare specimen,' and NA complexes, for instance, *stan podgorączkowy* (state subfebrile) 'slightly raised temperature,' should be represented as N' units. Cetnarowska and Trugman (2012) regard AN lexical idioms and NA tight units as forming N^0 composite expressions.

(44) ćwierć-, *a* *może* *nawet* *pół-litrówka*
quarter or maybe even half-litre_bottle.NOM.SG
'a 0.25 or perhaps even a 0.5 litre bottle (of vodka)'

(45) *drugo-*, *a* *może* *nawet* *pierwszo-klasiści*
second+LV or maybe even first +LV+form+SUFF.NOM.PL
'second form, or maybe even first form pupils'

Coordination can be encountered with morphological compounds as well as with prefixal derivatives, as indicated in (46) and (47) (see also Cetnarowska 2015a: 160).

(46) *pożyczka* *długo-* *lub* *krótko-terminowa*
loan.NOM.SG long+LV or short+LV+term.RA.NOM.SG
'a long term or short-term loan'

(47) a. *za- i roz-pakować* (*za*.PREF and *roz*.PREF pack) 'to pack and unpack'
b. *przed- i po-wyborcze spotkania*
pre- and post- election.RA.NOM.PL meeting.NOM.PL
'meetings preceding and following the elections'

As shown in Chapter 2, coordination is also encountered in the case of morphological compounds in English, as well as phrasal nouns. Payne and Huddleston (2002: 451) provide the example quoted here as (48) to show that English NN compounds, such as *history classes* and *philosophy classes*, allow both coordination and insertion of parenthetical strings.

(48) *They are cancelling all [history, philosophy, and even, I believe, linguistics classes].*

Non-head constituents of English NN compounds are sometimes accessible as antecedents to anaphoric elements, as are the nominal bases of relational adjectives in some AN/NA complexes in Polish (see Chapter 4 for examples).

In principle, one could draw a potential conclusion that both NN combinations in English and Polish AN/NA complexes are constructs, and that their resulting combinations are N' (not N^0). However, Polish AN or NA complexes and NN.GEN combinations are constituents of other phrasal nouns, as was illustrated in Chapters 4 and 5, so they will be analysed here as N^0. Moreover, Polish AN and NA combinations provide semantic motivation for morphological compounds or for affixal deriva-

tives,[13] as was demonstrated in Chapter 3 and as will be discussed in the immediately following section.

6.3 Second order schemas and univerbation in Polish

At the end of this chapter, I would like to present the usefulness of second order schemas in analysing the phenomenon of morphological condensation (i.e., univerbation), which was illustrated in Chapter 1 for Greek and Russian, and in Chapter 3 for Polish.

A second order schema is a set of two or more paradigmatically related schemas (see Booij and Masini 2015; Booij and Audring 2015). It can be used to account for a strict violation of Fregean compositionality, that is, when the meaning of a semantically complex word includes the meaning of a phrase (or word) that does not form a subconstituent of that complex word. Instances of violations of Fregean compositionality were discussed by Spencer (1991: 413–420) under the name of "bracketing paradoxes." Spencer invokes the notion of "proportional analogy" between A+N combinations, such as *baroque flute – baroque flutist*, or *transformational grammar – transformational grammarian*. He regards this process as a case of "paradigmatic word formation," which relies on the relationship between lexical phrases listed in the lexicon.

Booij and Masini (2015) discuss, among others, morphological condensation of A+N phrasal nouns in Russian, which are "squeezed" when giving rise to suffixal derivatives terminating in *-ka*. The suffixal derivatives have the same propositional meaning as the related A+N phrasal lexemes but are marked as belonging to colloquial (i.e., intimate and familiar) vocabulary.

(49) a. *mineral'naja voda* (mineral water) → *mineral-ka* 'mineral water'
b. *maršrutnoe taksi* (route.RA taxi) → *maršrut-ka* '(fixed) route taxi'
c. *èlektronnaja počta* (electronic mail) → *èlektron-ka* 'e-mail'

Booij and Masini (2015), following Masini and Benigni (2012), assume that the derivation of *-ka* nouns in (49), such as *mineralka* 'mineral water' in (49a), consists of several steps: the deletion of the head noun *voda* 'water,' followed by the truncation of the adjectival suffix *-nyj* and the addition of the suffix *-ka*. The internal structure of the resulting suffixal

[13] Consequently, also adjective+noun juxtapositions with migrating adjectives (e.g., *zimowe opony* 'winter tyres') are regarded here as N^0 complexes, although in Cetnarowska and Trugman (2012), they are treated as combinations of an adjective and an NP.

formation can be represented as [A_{Trun}-*ka*]. However, the semantics of *mineralka* 'mineral water' can be computed by referring to the meaning of the corresponding A+N combination. The paradigmatic relationship between the schema for suffixal -*ka* derivatives in Russian and the schema for A+N combinations is signalled by the symbol ≈ in the second order schema quoted in (50) (from Booij and Masini 2015).

(50) $< [A_i\ N]_{Nj} \leftrightarrow [\text{N with the property } SEM_i]_j > \approx < [A_{Trun}\text{-}ka]_{Nz} \leftrightarrow [SEM_j\ [+\text{familiar}]]_z >$

I propose here (as in Cetnarowska 2018) that a similar second order schema can be employed in Polish to signal the semantic relationship between A+N or N+A phrasal lexemes and -*ka* suffixal derivatives (see Chapter 3 and Cetnarowska 2018 for some other examples of such pairs of NA combinations and -*ka* formations).

(51) a. *szkoła zawodowa* (school vocational) 'vocational school'
a.′ *zawodówka* (vocation+ADJZ+NMLZ+NOM.SG) 'vocational school'
b. *opony zimowe* (tyres winter.RA) 'winter tyres'
b.′ *zimówki* (winter+ADJZ+NMLZ+NOM.PL) 'winter tyres'
c. *woda sodowa* (water soda.RA) 'soda water, carbonated water'
c.′ *sodówka* (soda+ADJZ+NMLZ+NOM.SG) 'sofa water, carbonated water'

The -*ka* derivatives in (51) show a colloquial tinge, in contrast to N+A phrasal lexemes which are perceived either as stylistically neutral or as more formal variants (which represent specialised vocabulary). Therefore, the second order schema proposed in (52) for Polish -*ka* derivatives (following Cetnarowska 2018: 310) contains the feature [+familiar] in the specification of the semantics of -*ka* formations.

(52) $< [\ N_i\ A_j\ ]_{Nk} \leftrightarrow [SEM_i \text{ with the property } SEM_j]_{SEMk} > \approx$
$< [\ A_j\ \text{–}ka]_{Nz} \leftrightarrow [SEM_k\ [+\text{familiar}]]_z >$

In contrast to the schema for Russian (given above in 50), the Polish adjective in the schema in (52) is not marked as being truncated (i.e., it is not A_{Trun}). This is because the adjectival suffix -*ow(y)* in *zawodowy* 'vocational, professional' is retained in the univerbated noun *zawodówka* 'vocational school.'

The schema in (52) will be rewritten further as (53), which looks more appropriate for suffixal -*ka* derivatives based on combinations of relational adjectives and nouns. The part which specifies the meaning of the RA+N combination in (53) makes reference to entity E denoted by the noun which is the base of the relational adjective in question, for example, the

noun *zawód* 'profession, vocation' as the base of *zawodowy* 'vocational, professional.'

(53) $< [N^0_i\ A^0_j\ ]_k \leftrightarrow$ [NAME for SEM_i with relation R to entity E of $SEM_j]_{SEMk} > \approx$
$< [\ A_j\ –ka]_{Nz} \leftrightarrow [SEM_k$ [+familiar]$]_z$

Similar second order schemas can be proposed for nouns which result from morphological condensation of NA units but which contain other suffixes. The schema for *-ak* derivatives (illustrated in 54) is given in (55a) (if the adjective is a relational one, e.g., *karny* 'penal' derived from the noun *kara* 'penalty') or (55b) (for *drobniaki* 'change').

(54) a. *rzut karny* (throw.NOM.SG penal.NOM.SG) 'penalty kick'
a.′ *karniak* (penal+NMLZ) 'penalty kick'
b. *drobne pieniądze* (small.NOM.PL money.NOM.PL) 'coins of small denomination'
b.′ *drobniaki* (small+NMLZ+PL) 'change, coins of small denomination'
c. *liceum ogólnokształcące* (high_school.NOM.PL general_education.NOM.PL) 'academic high school'
c.′ *ogólniak* (general+NMLZ) 'academic high school'

(55) a. $< [N^0_i\ A^0_j\ ]_k \leftrightarrow$ [NAME for SEM_i with relation R to entity E of $SEM_j]_{SEMk} > \approx$
$< [\ A_j\ –ak]_{Nz} \leftrightarrow [SEM_k$ [+familiar]$]_z$
b. $< [N^0_i\ A^0_j\ ]_k \leftrightarrow$ [NAME for SEM_i with the property $SEM_j]_{SEMk} > \approx$
$< [\ A_j\ –ak]_{Nz} \leftrightarrow [SEM_k$ [+familiar]$]_z$

A similar second order schema can be postulated for *-ec* derivatives in (56), which are motivated semantically by N+A combinations. The feature [+familiar] is dropped in the schema in (57), since *-ec* suffixal nouns are stylistically neutral (e.g., those in 56).

(56) a. *statek żaglowy* (ship sail.RA) 'sailing ship'
a.′ *żaglowiec* (sail+ADJZ+NMLZ) 'sailing ship, sailboat'
b. *pracownik drogowy* (employee road.RA) 'roadman'
b.′ *drogowiec* (road+ADJZ+NMLZ) 'roadman, highway engineer'
c. *statek kontenerowy* (ship container.RA) 'container ship'
c.′ *kontenerowiec* (container+ADJZ+NMLZ) 'container ship'

(57) $< [N^0_i\ A^0_j\ ]_k \leftrightarrow$ [NAME for SEM_i with relation R to entity E of $SEM_j]_{SEMk} > \approx$
$< [\ A_j\ –ec]_{Nz} \leftrightarrow [SEM_k\ ]_z$

As mentioned in Chapter 3, compound adjectives and compound nouns can be motivated semantically by N+A or A+N phrasal lexemes in Polish.

The second order schema in (58) shows that the semantic specification of the adjective in (59b) makes reference to the meaning of the A+N combination in (59a). The A+N complex is not a formal constituent of the related adjective, because phrasal constituents cannot be incorporated into affixal derivatives in Polish. Moreover, while both constituents of the A+N combination are inflected in (59a), they occur as stems and are linked by means of the vowel *-o-* in the adjective in (59b), which terminates in the suffix *-owy*.[14]

(58) $< [A^0_i\ N^0_j]_k \leftrightarrow [\text{NAME for SEM}_j \text{ with property SEM}_i]_{SEMk} > \approx$
$< [[A_{iStem}] + \text{LV} + [N_{jStem}] - ow(y)]_{Az} \leftrightarrow [\text{relating to SEM}_k]_z >$

(59) a. *czarny rynek* (black market) 'black market'
b. *czarnorynkowy* (black+LV+market+ADJZ+NOM.SG) 'relating to black market'
c. *Biała Gwardia* (white guard) 'the White Guard, which was a part of the WhiteArmed Forces during the Civil War in 1918 in Russia'
d. *białogwardyjski* (white+LV+guard+ADJZ+NOM.SG) 'relating to the White Guard'

The data in (60) show even more convincingly that elements of N+A combinations cannot be recognised as formal constituents of the adjectives (in 60b, 60d). Their word order is different in N+A complexes and in corresponding adjectives. The second order schema in (61) shows the semantic relatedness between N+A tight units and the compound adjectives terminating in *-ny*.

(60) a. *prawo cywilne* (law.NOM.SG civil.NOM.SG) 'civil law'
b. *cywilnoprawny* (civil+LV+law+ADJZ+NOM.SG) 'relating to civil law'
c. *Armia Czerwona* (army.NOM.SG red.NOM.SG) 'the Red Army'
d. *czerwonoarmijny* (red+LV+army+ADJZ+NOM.SG) 'relating to the Red Army'

(61) $< [N^0_i\ A^0_j]_k \leftrightarrow [\text{NAME for SEM}_i \text{ with some relation R to entity E of SEM}_j]_{SEMk} > \approx$
$< [[A_{iStem}] + \text{LV} + [N_{jStem}] - n(y)]_{Az} \leftrightarrow [\text{relating to SEM}_k]_z >$

Additional second order schemas can be proposed to account for the semantic relatedness between A+N phrasal nouns and for interfixal-suffixal compound nouns, such as *białogwardzista* 'the White Guard soldier,' related to the phrasal A+N noun *Biała Gwiardia* 'the White Guard,' or *czarnoseciniec* 'relating to the Black Hundreds,' motivated by *Czarna Sotnia* (black unit_of_100_men) 'the Black Hundreds, i.e., Russian monarchist,

[14] The adjective in (59d) terminates in the suffix *-ski*.

chauvinist and ultranationalist movement in the early 20th century.' Such second order schemas would involve a paradigmatic relatedness between the schemas for *-ista* or *-ec* suffixation and the schemas for A+N phrasal nouns. It is also possible to formulate second order schemas stating the paradigmatic relationship between schemas for A+N juxtapositions and *-owiec* suffixation. They could be used to indicate that the interfixal-suffixal compound nouns *wolnorynkowiec* 'advocate of free-market economy,' *drugoobiegowiec* 'samizdat publication, undergound publication,' and *krótkometrażowiec* 'short fim' are motivated semantically by the A+N combinations *wolny rynek* 'free market,' *drugi obieg* (second circuit) 'samizdat, underground publishing,' and *krótki metraż* (short length) 'short film (i.e., not a full-length film).' However, there are correspoding relational adjectives terminating in *-owy*, such as *wolnorynkowy* 'relating to free market,' *drugoobiegowy* 'relating to samizdat publications,' and *krótkometrażowy* 'relating to short films.' Therefore the nouns in question can be treated as *-ec* derivatives formed from *-owy* adjectives (the latter being semantically related to A+N phrasal nouns).

6.4 Summary

In this chapter, I proposed construction schemas for selected types of compound nouns and phrasal nouns in English and Polish. In doing so, I adopted the framework of Construction Morphology (e.g., Booij 2009, 2010; Masini 2009; Booij 2018). I assumed (in agreement with other proponents of Construction Morphology, e.g., Masini 2009; Booij 2010; Hüning 2010) that knowledge of complex words may be represented as a hierarchy. Consequenty, the lexicon (i.e., the constructicon) contains abstract schemas (at the top of the hierarchy) which are instantiated by increasingly more specific subschemas (lower in the schema hierarchy). I employed the abstract schema proposed for endocentric right-headed compounds in Germanic languages (as formulated by Booij 2010 and Arcodia 2012) and showed how it can be made more specific to analyse the internal structure of coordinate compound nouns and some exocentric compound nouns in English. When formulating construction schemas for Polish morphological compound nouns, I made use of the concept of schema unification (Booij 2007, 2010, 2015) to express the generalisation that interfixal-suffixal compounds, such as *krwiodawca* (blood+LV+give+NMLZ) 'blood donor,' involve a combination of (i.e., unification of) compounding and suffixation. I also proposed a unification of the schemas for compounding and paradigmatic derivation, to account for the existence of interfixal-paradigmatic compound nouns in Polish,

such as *czarnoziem* (black+LV+earth+ø) 'chernozem.' Moreover, I used the concept of second order schemas (proposed by Booij 2015, Booij and Audring 2015, and Booij and Masini 2015). Second order schemas were postulated to account for the semantic relatedness between phrasal nouns in Polish and suffixal derivatives (or morphological compounds).

Two functions of construction schemas were recognised (cf. Booij 2010). Firstly, they generalise over sets of existing morphologically complex words and account for their internal structure (and semantic interpretation). Secondly, they can act as patterns for coining novel complex words. The latter function was shown to be particularly important for low-level schemas which instantiate the abstract schema for interfixal-suffixal compounding and in which the position of the verb stem and the affix is lexically filled, for instance by the verb stem *daw-* 'give' and the agentive suffix *-ca* (as in 19). Such low-level schemas are responsible for the spread of novel compound nouns in Polish which form semantic niches (e.g., compound nouns terminating in the word *dawca* 'giver, donor,' *biorca* 'recipient,' or in the sequence *-bójca* 'killer').

Some construction schemas were proposed for coordinate NN phrasal lexemes in Polish, for phrasal nouns in English and Polish which contain nouns and adjectives (in any order), and for phrasal nouns which are combinations of head nouns accompanied by a genitive attribute, namely, *N's N* genitive compounds in English and NN.GEN complexes in Polish. The presentation of the schemas for phrasal nouns (and for compound nouns) is, undoubtedly, fragmentary, since an exhaustive discussion of this topic would call for a much longer monograph. My proposals can be regarded as tentative, due to the controversial nature of some issues concerning syntactic representation of phrasal lexemes in English and Polish, for instance, the question whether phrasal nouns should be treated as units of category X^0 or of category X'. I decided to treat phrasal nouns (in English and Polish) as lexical items of the word-level category X^0, just like morphological compound nouns. This is because morphological compounds and phrasal nouns show some similarity in their syntactic behaviour (e.g., in the access of coordination to their constituents or in the possibility of inserting parenthetical strings). Moreover, my decision to treat phrasal nouns as N^0 units takes into account the interaction between schemas for coining morphological compounds and those for coining phrasal nouns. In the case of English, phrasal nouns (e.g., A+N complexes) can become constituents of morphological compounds. In Polish, A+N and N+A phrasal nouns motivate semantically compound nouns, compound adjectives, and affixal derivatives.

Conclusion

In this monograph, I investigated units which consist of two or more lexemes (or two or more stems) in two languages, that is, in English and in Polish. I discussed compound nouns but I focused on NN or AN/NA combinations which show an intermediate status between morphological compounds and free syntactic combinations. As indicated in Chapter 1, the latter multi-word units are often referred to as improper compounds, syntactic compounds, and loose multi-word compounds. Following Booij (2009, 2010), Masini (2009), Masini and Benigni (2012), and Masini and Scalise (2012), among others, I referred to such NN, AN or NA combinations as phrasal nouns. In the case of English, I looked at so-called genitive compounds (*men's shoes*, *girls' school*) and at complex nominals which consist of relational adjectives and head nouns, such as *solar panel*, *solar battery*, and *natural gas*. When discussing Polish, I took into consideration NN, AN, and NA multi-word units, such as *słowo honoru* (word.NOM.SG honour.GEN.SG) 'word of honour,' *panna młoda* (maid young) 'bride,' *policyjny samochód* (police.RA car) 'police car,' *aktor-tancerz* 'actor-dancer,' or *statek wielorybniczy* (ship whale.RA) 'whaling ship.' They are traditionally called juxtapositions by Polish morphologists.

The data considered here confirm the observations made by other morphologists on the basis of data taken from a number of European languages (including Greek, Italian, Spanish, French, German, and Dutch). They show that it is difficult to draw (in a non-arbitrary manner) the border between morphological units (i.e., compounds proper) and free syntactic combinations. Diagnostic criteria employed in distinguishing between morphological compounds and syntactic units are often unreliable, as there may be clashes between the predictions of two or more diagnostic tests applied to a particular multi-word expression. As mentioned in Chapter 2, following Bauer (1998), Giegerich (2005, 2009), and Bell (2012), some A+N combinations in English show the stress pattern associated with compound nouns (i.e., forestress), yet their head can be replaced by *one* (which is typical of syntactic phrases), as in *medical appointment*, *financial advisor*, and *mental hospital*. Diagnostic tests may be language-particular. The lack of inflectional endings on non-head constituents of multi-word units is commonly mentioned as a feature of mor-

phological compounds in English, Polish, or Greek, whereas in the case of Romance languages, both constituents of selected compounds (especially of the coordinate type) are allowed to be inflected. Occasionally, inflectional markers are visible on both constituents of English compounds, as in *women pilots* and *parks committee*. In the case of Polish, a subgroup of composite expressions, referred to as solid compounds, exhibit compound-internal inflectional endings, as in *Wielkanoc* (great night) 'Easter,' in spite of being written as single orthographic words and pronounced as single prosodic words. There is no agreement between morphologists as to which criterion should be decisive in identifying morphological compounds (as shown in Chapter 2 and Chapter 3).

Phrasal nouns share properties of morphological compounds and free syntactic combinations. They have the internal syntactic structure, yet they function as naming units. It was proposed by Ralli (2013) for Greek that there is a continuum between morphological compounds and canonical syntactic phrases, since phrasal nouns and compounds proper show various combinations of word-like and phrase-like characteristics. A similar conclusion can be tentatively postulated for Polish as well as for English.

In contrast to regular noun phrases, phrasal nouns in English and Polish show lexical integrity, internal cohesion, and syntactic minimality. One of the manifestations of lexical integrity is the expectation that constituents of phrasal nouns will not allow paradigmatic substitution (as is indicated by the comparison of the phrasal noun *children's home* with the syntactic phrase *kids' home*). However, in the case of phrasal nouns which represent productive (i.e., common) semantic types, substitution of the modifier or the head results in a well-formed multi-word unit, for instance, *financial adviser*, *legal adviser*, and *financial guardian* in English, or *pociąg osobowy* (train passenger.RA) 'passenger train, slow train, local train,' *samochód osobowy* (car passenger.RA) 'passenger car,' and *samochód pożarniczy* (car fire.RA) 'fire truck' in Polish. This restriction is violated also in the case of morphological compounds, as is shown by English NN endocentric compounds, such as *research vessel*, *fishing vessel*, and *fishing boat*, or by Polish compounds with the constituent *dawc*a 'giver' and *biorca* 'recipient, taker,' such as *krwiodawca* (blood+LV+giver) 'blood donor,' *pracodawca* (work+LV+giver) 'employer,' *kredytodawca* (credit+LV+giver) 'lender,' and *kredytobiorca* (credit+LV+taker) 'debtor, borrower.'

Phrasal lexemes are expected to show syntactic fixedness. The word order of their consitutents does not normally allow changes. This is observed in the case of English NN.GEN phrasal nouns (i.e., genitive compounds), for instance, *children's home* vs. **home children's*, and A+N combinations, such as *electrical engineer* vs. **engineer electrical*. It needs to be added,

though, that the irreversibility of constituents of English NN.GEN and AN combinations follows from the fixed word order in the English language. For Polish phrasal nouns, it is observed that genitive attributes in NN.GEN juxtapositions cannot be fronted, although genitive phrases in free syntactic combinations can. This is shown by the contrast between *dom dziecka* (house child.GEN) 'children's home, orphanage,' vs. (*)*dziecka dom* (child.GEN house), which is acceptable only as a free syntactic combination interpretable as 'a/the house of a/the child.' We can further illustrate the possibility of word order change in the noun phrase *dom Marka* (house Marek.GEN) 'Marek's house; a house which belongs to Marek' and *Marka dom* (Marek.GEN house) 'Marek's house, a house which belongs to Marek.'

The restriction against word order flexibility needs to be relaxed, though, in the case of Polish NN juxtapositions with the coordinate interpretation (or those which belong to the transitional zone between coordinate and attributive classes), for instance, *tancerz aktor* 'dancer actor,' *aktor-tancerz* 'actor-dancer' and *idiota policjant* (idiot policeman) 'an idiot of a policeman,' *policjant idiota* (policeman idiot) 'an idiot of a policeman.' Coordinate phrasal nouns resemble, in this respect, coordinate morphological compounds, such as Polish *stołoława* (table+LV+bench) 'coffee table,' *ławostół* (bench+LV+table) 'coffee table,' *półkotapczan* (shelf+LV+couch) 'wall bed,' and *tapczanopółka* (couch+LV+shelf) 'wall bed,' or the English compounds *dancer-actor* and *actor-dancer*. There are also adjective+noun combinations in Polish which allow their adjectival constituents to occur either in the pre-head or in the post-head position, as in *zimowe buty* (winter.RA shoes) / *buty zimowe* (shoes winter.RA) 'winter shoes.'

Moreover, lexical integrity and internal cohesion are reflected in the restriction against individual modifiers of (non-head or head) constituents occurring inside phrasal nouns. Thus, the adjective *karłowaty* 'dwarf, pygmy' in the Polish NA combination *hipopotam karłowaty* 'pygmy hippopotamus' cannot take modifiers, such as *bardzo* 'very' or *niezwykle* 'extremely,' without losing its phrasal noun status (and changing into a descriptive phrase), for instance, *hipopotam bardzo karłowaty* 'a very small, dwarfish hippopotamus' (not necessarily a representative of the species Choeropsis liberiensis or Hexaprotodon liberiensis). Similarly, when a post-head modifier is added to the head constituent of the NA naming unit *niedźwiedź brunatny* (bear brown) 'brown bear, Ursus arctos,' the naming unit changes into a descriptive noun phrase, fo instance, *niedźwiedź brunatny na grzbiecie* 'a bear (of any species) which has brown fur on its back.' English NN.GEN phrasal nouns or AN complex nominals cannot be split by a qualitative adjective, as illustrated by **a girls' famous school* and **an electrical good-looking engineer*.

I was careful to set aside apparent violations of syntactic restrictedness (and syntactic minimality) of phrasal nouns which stem from the recursive application of construction schemas employed to build various types of phrasal nouns. This can be illustrated by Polish A+N and N+A combinations, such as *odzież robocza* (clothing work.RA) 'work clothing,' which can take the adjectival post-modifier *ochronna* 'protective' and form a complex NA phrasal lexeme *odzież robocza ochronna* 'protective work clothing.' Moreover, there may be an interaction of construction schemas for Polish NN.GEN juxtapositions and NA juxtapositions, for instance, the NA combination *aktywność fizyczna* (activity physical) 'physical activity' can become a complex head for the NN.GEN juxtaposition *aktywność fizyczna seniorów* 'physical activity of senior citizens.' In English, a particular A+N phrasal noun can become a complex head for a bigger A+N phrasal noun; for example, *Senatorial Committee* can be recognised as the head of the phrasal noun *Republican Senatorial Committee*.

It is commonly stated that elements of morphologically complex words (including morphological compounds) cannot act as antecedents for anaphoric elements, including personal pronouns, possessive pronouns, relative pronouns, and the English pro-form *one*. Nouns occurring as genitive constituents of NN.GEN phrasal nouns in Polish and English are not referential, in contrast to genitive attributes in free syntactic combinations (e.g., in contrast to determiner genitives in English). As was mentioned above and discussed in Chapter 2 (following Giegerich 2005, 2009), constituents of some AN phrasal nouns in English can be replaced by *one*, for instance, *a medical appointment or a dental one*. While it is possible to treat *one*-replacement as signalling the status of a particular AN string in English as a syntactic object (i.e., a canonical noun phrase, as in Giegerich 2005), other diagnostic tests (e.g., stress pattern) point to the word-like status of such AN combinations. Examples were constructed in Chapter 4 to demonstrate that in Polish N+RA or RA+N combinations, the noun which is the derivational base of the relational adjective can occasionally be accessible to anaphoric elements. Although this violates anaphoric islandhood, such a behaviour of N+RA (or RA+N) phrasal nouns resembles the behaviour of morphological compounds in English, in which the modifier noun can occasionally act as an antecedent for anaphoric elements. We can also see that there is a cross-linguistic continuum between morphological compounds which are more and less word-like, with Polish compounds proper being closer to the word end and English NN compounds shifting towards the syntactic end.

In modular approaches to grammar (e.g., the structuralist framework espoused by Nagórko 1996, or the lexicalist model of generative morphology adopted by Szymanek 2010), morphological compound nouns

and phrasal nouns belong to different modules (i.e., either to morphology or syntax). Therefore, they are not normally discussed together. However, it was shown above that there are many instances of interaction between phrasal nouns and compounds. In the case of English AN combinations and NN.GEN combinations, it was shown that they can serve as constituents of morphological compounds, such as *academic teaching development* and *girls' schools association*. The instances of [[AN]N] or [N [AN]] combinations in English investigated by Bell (2012), for example, [[*south London*] *colleges*] or [*bicycle* [*inner tube*]], can also be regarded as phrasal nouns becoming input to compounding. Moreover, English morphological compounds can be coordinated with phrasal nouns, as in *faculty and deparmental libraries*.

Phrasal nouns in Polish (i.e., A+N or N+A juxtapositions) can motivate (semantically) morphological compound nouns or compound adjectives. For instance, the N+A expression *Armia Czerwona* (army red) 'Red Army' is related semantically to the compound noun *czerwonoarmista* 'Red Army soldier' and the compound adjective *czerwonoarmijny* 'related to Red Army.' Polish A+N or N+A combinations can also undergo morphological condensation. They can be replaced by propositionally synonymous suffixal derivatives, as in *szkoła zawodowa* (school vocational) 'vocational school' and *zawodówka* (colloq.) 'vocational school,' or by nominalised adjectives, for instance, *muzyczny* 'related to music' used in the sense of *sklep muzyczny* (shop musical) 'music store.'

There may be either diachronic or synchronic variation between compounds proper and phrasal nouns. In the case of English, it was pointed out in Chapter 2 that genitive compounds can have NN compounds as alternative forms, for instance, *bull's eye* and *bullseye*, or the *lawyer's fees* and *lawyer fees*. Variation between A+N complex nominals and NN compounds is illustrated by numerous pairs in English, such as *atomic bomb – atom bomb* or *racial problem – race problems* (as discussed at length by Levi 1978). Diachronic studies in Polish show that coordinate or attributive NN juxtapositions can be replaced by solid compounds or by compounds proper. Synchronically, variation can be observed between Polish coordinate NN juxtapositions and coordinate morphological compounds, such as *żel-krem* (gel cream) vs. *żelokrem* (gel+LV+cream) 'cream-gel.'

When the formation of phrasal nouns is discussed side by side with compounding, it is possible to discover and highlight the ways in which the two types of processes compete and complement each other. This competition is particularly interesting (and complex) in Polish. As was shown in Chapter 5, subordinate synthetic compounds in Polish are not very frequent. Instead, NN.GEN juxtapositions are employed. Attributive (and endocentric) AN or NA combinations may coincide with exocentric

AN morphological compounds, for instance, *kąt prosty* (angle straight) 'straight angle' and *prostokąt* (straight+LV+angle) 'rectangle.' Coordinate hybrid NN composite units obligatorily take the form of compounds proper, such as *łososiopstrąg* 'salmon trout' and *małpolud* 'apeman, anthropoid.' In contrast, NN combinations with the similative reading ('N1 similar to N2') are phrasal nouns, for instance, *człowiek tygrys* 'tigerman' and *kobieta kot* 'Catwoman.' Coordinate NN combinations of the multifunctional and additive type are either phrasal nouns or compounds proper, which gives rise to their variability in form, as in *barman-kelner* (bartender waiter) 'waiter-bartender' and *barmanokelne*r (bartender+LV+waiter) 'waiter-bartender.'

I argued in Chapter 6 that the assumptions and theoretical machinery of Construction Morphology can be felicitously applied to the study of phrasal nouns since the divide between the syntactic component and the lexical one is abandoned in Construction Grammar. Syntactic patterns can be employed for creating naming units. Construction schemas have two functions. Firstly, they can analyse the internal structure and semantic interpretation of existing complex words (or phrasal lexemes). Secondly, they provide patterns for novel morphologically complex words (or for phrasal lexemes). The second function is particularly important in the case of multi-word expressions in Polish, since construction schemas provide instructions for creating novel phrasal lexemes, which can be used to fill lexical gaps in general vocabulary or in specialised languages (e.g., in shipping terminology as shown in Section 3.2). The application of construction schemas shows recursion, and this allows for a greater precision in coining specialised terms, as shown in Chapter 5. Although institutionalised phrasal nouns can be stored in the lexicon and can incorporate surplus meaning, phrasal lexemes should not be regarded as idiosyncratic and lexicalised syntactic phrases.

Furthermore, I have shown the usefulness of second order schemas in expressing paradigmatic relationship between morphological construction schemas (e.g., schemas for compound adjectives or suffixal *-ka* derivatives in Polish) and between schemas for phrasal nouns. I have also hinted at the possibility of unifying construction schemas (as proposed by Booij 2015 for Dutch) for the occurrence of interfixal-suffixal formations and interfixal-paradigmatic formations in Polish. Combined construction schemas are particularly useful in motivating the internal structure and semantics of Polish compounds proper whose right-hand stem is not an actually occurring word, for instance, *-łówstwo* 'catching' in *rybołówstwo* 'fishing.'

The exact formulation of the above-mentioned unified schemas for synthetic morphological compounds in Polish requires further elabora-

tion, though. There are also other issues which call for more discussion, beyond the limits of this monograph. One of them is the distinction betweeen coordinate and attributive phrasal nouns, which is difficult to draw in Polish, for instance, with respect to such NN combinations like *kierowca idiota* (driver idiot) 'an idiot of a driver' and *kobieta pilot* (woman pilot) 'female pilot.' No attention was given in the present monograph to N+PP combinations in Polish and English, although it was pointed out that some of them can function as naming units, such as English *balance of payments* or Polish *maszyna do szycia* 'sewing machine.'

It will also be interesting in the future to devote more space to the relationship between productivity of word-formation processes and the occurrence of hapax legomena. Although the formation of synthetic compounds is not a very productive process in Polish and has many lexical gaps (filled by phrasal lexemes), novel formations can be attested, such as ?*powieściopisanie* 'novel writing' and ?*prezydentobójca* 'killer of a/the president.'

Another issue which is worth investigating in future studies is the blocking mechanism as applied to phrasal nouns. Booij (2019) suggests that there are blocking effects between morphological and phrasal constructs in Dutch. Examples were provided (in Chapter 5) in which NN.GEN combinations are established and stylistically neutral formations, while morphological compounds are stylistically marked and evoke a humorous effect (e.g., *dostawca paczek* 'parcel deliverer' – ?*paczkonosz* 'parcel deliverer'). However, I have shown that morphological compounds frequently coexist with synonymous phrasal nouns in Polish and English. In Polish there seem to be no blocking effect in the domain of phrasal lexemes, as there are synonymous phrasal nouns exhibiting distinct phrasal patterns, such as NN.GEN and N+RA.

Appendix

Fig. 1. Relative textual density of *atomic bomb* vs. *atom bomb* from Google ngrams (AmE)

Fig. 2. Relative textual density of *atomic bomb* vs. *atom bomb* from Google ngrams (BrE)

Fig. 3. Relative textual density of *Biblical society* vs. *Bible society* from Google ngrams (AmE)

Fig. 4. Relative textual density of *Biblical society* vs. *Bible society* from Google ngrams (BrE)

Fig. 5. Relative textual density of *departmental committee* vs. *department committee* from Google ngrams (AmE)

Fig. 6. Relative textual density of *departmental committee* vs. *department committee* from Google ngrams (BrE)

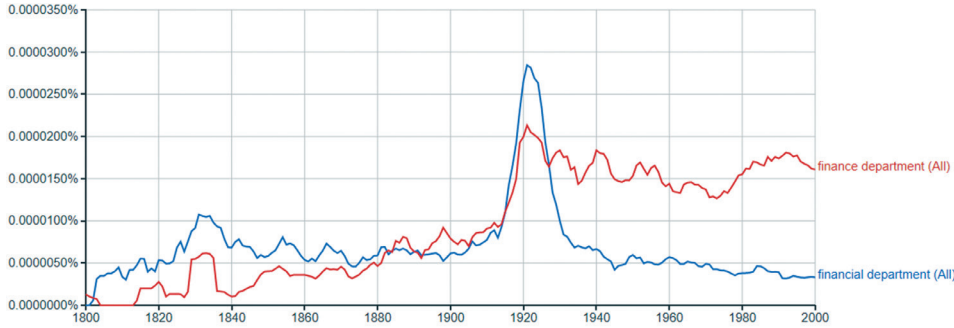

Fig. 7. Relative textual density of *financial department* vs. *finance department* from Google ngrams (AmE)

Fig. 8. Relative textual density of *financial department* vs. *finance department* from Google ngrams (BrE)

Fig. 9. Relative textual density of *grammatical rule* vs. *grammar rule* from Google ngrams (AmE)

Fig. 10. Relative textual density of *grammatical rule* vs. *grammar rule* from Google ngrams (BrE)

Fig. 11. Relative textual density of *parental consent* vs. *parent consent* from Google ngrams (AmE)

Fig. 12. Relative textual density of *parental consent* vs. *parent consent* from Google ngrams (BrE). (Search for "parent consent" yielded only one result.)

Fig. 13. Relative textual density of *dolls' house* vs. *dollhouse* from Google ngrams (AmE)

Fig. 14. Relative textual density of *dolls' house* vs. *dollhouse* from Google ngrams (BrE)

Fig. 15. Relative textual density of *frog's mouth* vs. *frogmouth* from Google ngrams (AmE)

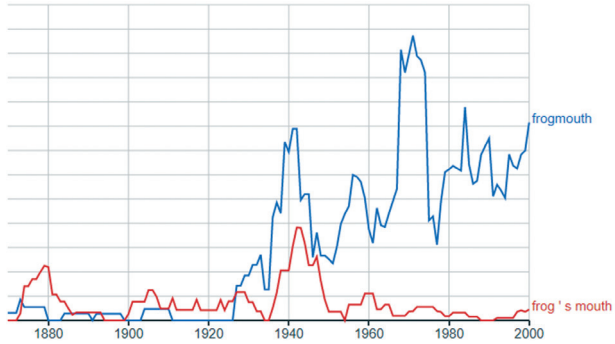

Fig. 16. Relative textual density of *frog's mouth* vs. *frogmouth* from Google ngrams (BrE)

Fig. 17. Relative textual density of *lawyers' fees* vs. *lawyer fees* from Google ngrams (AmE)

Fig. 18. Relative textual density of *lawyers' fees* vs. *lawyer fees* from Google ngrams (BrE)

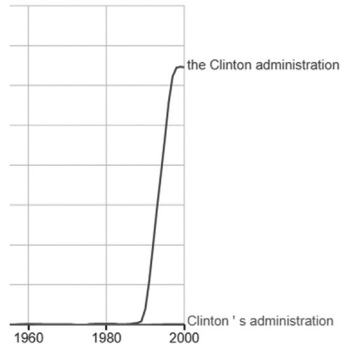

Fig. 19. Relative textual density of *Clinton's administration* vs. *the Clinton administration* from Google ngrams (AmE)

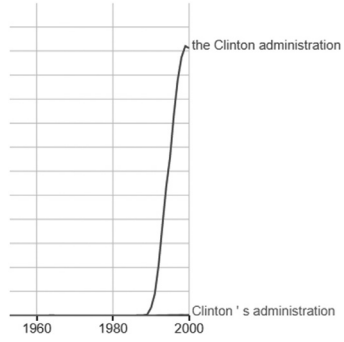

Fig. 20. Relative textual density of *Clinton's administration* vs. *the Clinton administration* from Google ngrams (BrE)

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Bożena Cetnarowska

Compound nouns and phrasal nouns in English and Polish

S u m m a r y

The present monograph discusses compound nouns and juxtapositions (i.e., phrasal nouns) in Polish and English, focusing on the interaction and competition between the processes of coining both types of linguistic units. The phrasal nouns under analysis include combinations of classifying adjectives and nouns in any order, for instance, English *electrical engineer*, *hard disk*, Polish *inżynier budowlany* 'construction engineer,' *zimowe opony* 'winter tyres'; coordinate noun-noun juxtapositions, such as Polish *torba-worek* 'holdall bag,' *kelner-barman* 'waiter and bartender'; and combinations of nouns and genitive attributes (English *women's college*, Polish *dom studenta* 'student hall of residence'). Constraints on forming compound nouns in Polish are illustrated. Compound nouns and phrasal nouns are divided into classes according to the typology of composite expressions postulated by S. Scalise and A. Bisetto. Emphasis is placed on demonstrating that phrasal nouns exhibit a mixture of phrasal and word-like properties. Difficulties are pointed out in drawing a strict and non-arbitrary border between morphological compounds and syntactic phrases, and in identifying subtypes of phrasal nouns which differ in their degree of similarity to regular noun phrases. The phenomenon of univerbation (i.e., morphological condensation) in the Polish language is discussed. The framework adopted in this monograph is the theory of Construction Morphology, formulated by G. Booij, who shows that principles of Construction Grammar can be applied felicitously in the analysis of morphologically complex words. Construction Morphology has been adopted mainly by researchers who study Germanic and Romance languages. In the present monograph construction schemas are proposed for selected types of compound nouns and phrasal nouns in Polish and English. The mechanism of schema unification is employed in order to represent the internal structure of interfixal-suffixal formations in Polish. It is demonstrated that the model of Construction Morphology is particularly felicitous in the study of phenomena at the border of syntax and word-formation, such as interaction and competition between morphological compounds and phrasal lexemes. Although the linguistic data under analysis come mainly from Polish and English, multi-word units from other Indo-European languages are mentioned where appropriate. Theoretical considerations are supported by numerous examples culled from on-line corpora, such as the Corpus of Contemporary American English (COCA) and the National Corpus of Polish (NKJP).

Key words: compound nouns, juxtapositions, classifying adjectives, Construction Grammar, Construction Morphology

Bożena Cetnarowska

Rzeczowniki złożone i rzeczowniki frazowe w języku angielskim i polskim

S t r e s z c z e n i e

Niniejsza monografia omawia procesy tworzenia rzeczowników złożonych oraz zestawień, koncentrując się na zjawiskach współdziałania oraz rywalizacji pomiędzy tymi procesami w języku polskim i angielskim. Zestawienia analizowane w pracy składają się z połączeń rzeczownika z przymiotnikiem klasyfikującym (np. ang. *electrical engineer, hard disk*, pol. *inżynier budowlany, zimowe opony*), zestawień rzeczownikowych o strukturze współrzędnej (np. *torba-worek, kelner-barman*) oraz połączeń rzeczownikowych o strukturze podrzędno-nadrzędnej (ang. *women's college*, pol. *dom studenta*). Przedstawiono ograniczenia dotyczące tworzenia złożeń właściwych w języku polskim. Do podziału złożeń oraz zestawień na podklasy zastosowano klasyfikację *compositów*, którą zaproponowali włoscy językoznawcy S. Scalise i A. Bisetto. Główny nacisk położono na podkreślenie hybrydowego charakteru zestawień, wykazujących zarówno cechy konstrukcji składniowych, jak też jednostek leksykalnych. Przedstawiono trudności w ścisłym odgraniczeniu złożeń właściwych od leksemów frazowych (tj. zestawień) oraz w rozróżnianiu podtypów leksemów frazowych (wykazujących mniejsze lub większe podobieństwo do regularnych struktur składniowych). Omówiono zwięźle zjawisko uniwerbizacji w języku polskim. Analizy teoretyczne zostały przeprowadzone w ramach teorii morfologii konstrukcji (ang. *Construction Morphology*) sformułowanej przez G. Booija. Teoria ta, w której zaadoptowano założenia gramatyki konstrukcji (ang. *Construction Grammar*) do analizy struktury wewnętrznej wyrazów, była stosowana do tej pory głównie w opisie morfologii języków germańskich oraz romańskich. W niniejszej pracy zaproponowano schematy konstrukcyjne dla wybranych typów złożeń i zestawień w polszczyźnie i angielszczyźnie. Zastosowano mechanizm zjednoczenia schematów konstrukcyjnych (ang. *schema unification*) dla przedstawienia wewnętrznej struktury formacji interfiksalno-sufiksalnych. Wykazano, że model morfologii konstrukcji jest szczególnie przydatny w badaniu zjawisk z pogranicza składni i słowotwórstwa, takich jak rywalizacja pomiędzy złożeniami i zestawieniami. Chociaż materiał językowy analizowany w pracy pochodzi głównie z języka polskiego oraz angielskiego, uwzględniono dane z innych języków indoeuropejskich. Rozważania teoretyczne zostały poparte licznymi przykładami wybranymi z obszernych korpusów językowych, takich jak Corpus of Contemporary American English (COCA) oraz Narodowy Korpus Języka Polskiego (NKJP).

Słowa kluczowe: rzeczowniki złożone, zestawienia, przymiotniki klasyfikujące, gramatyka konstrukcji, morfologia konstrukcji

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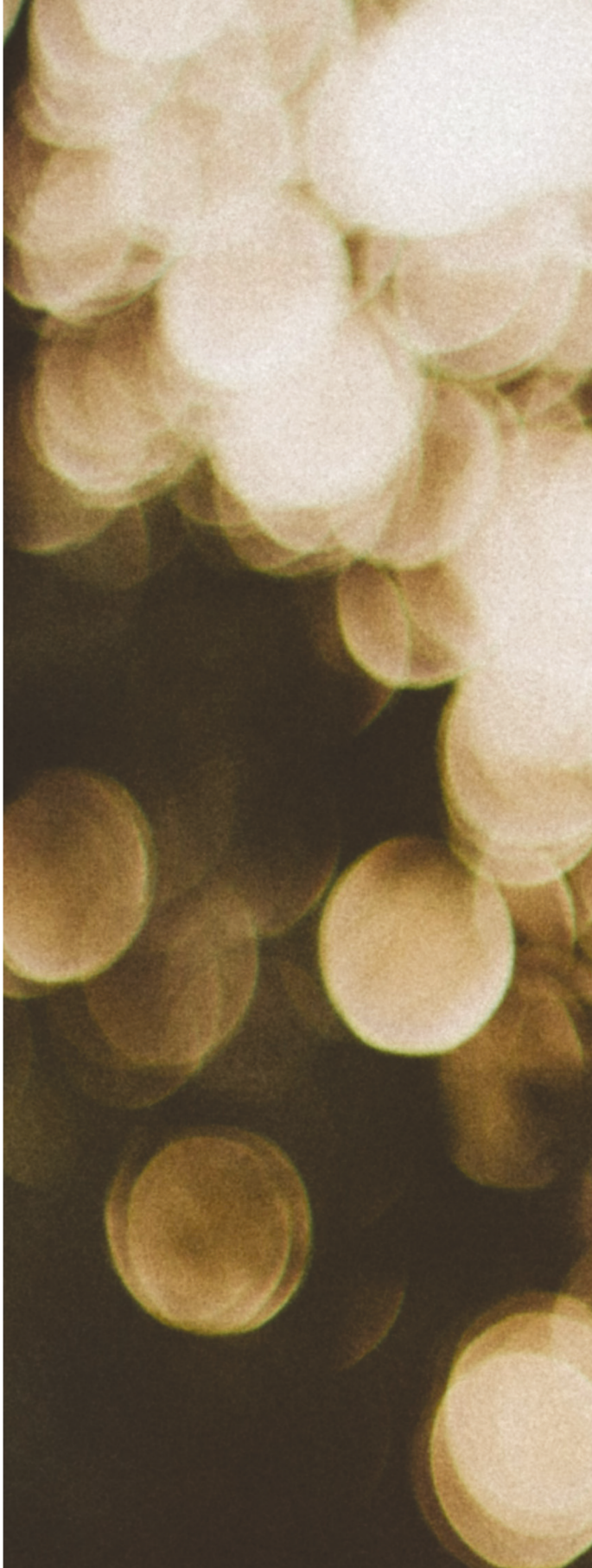

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